AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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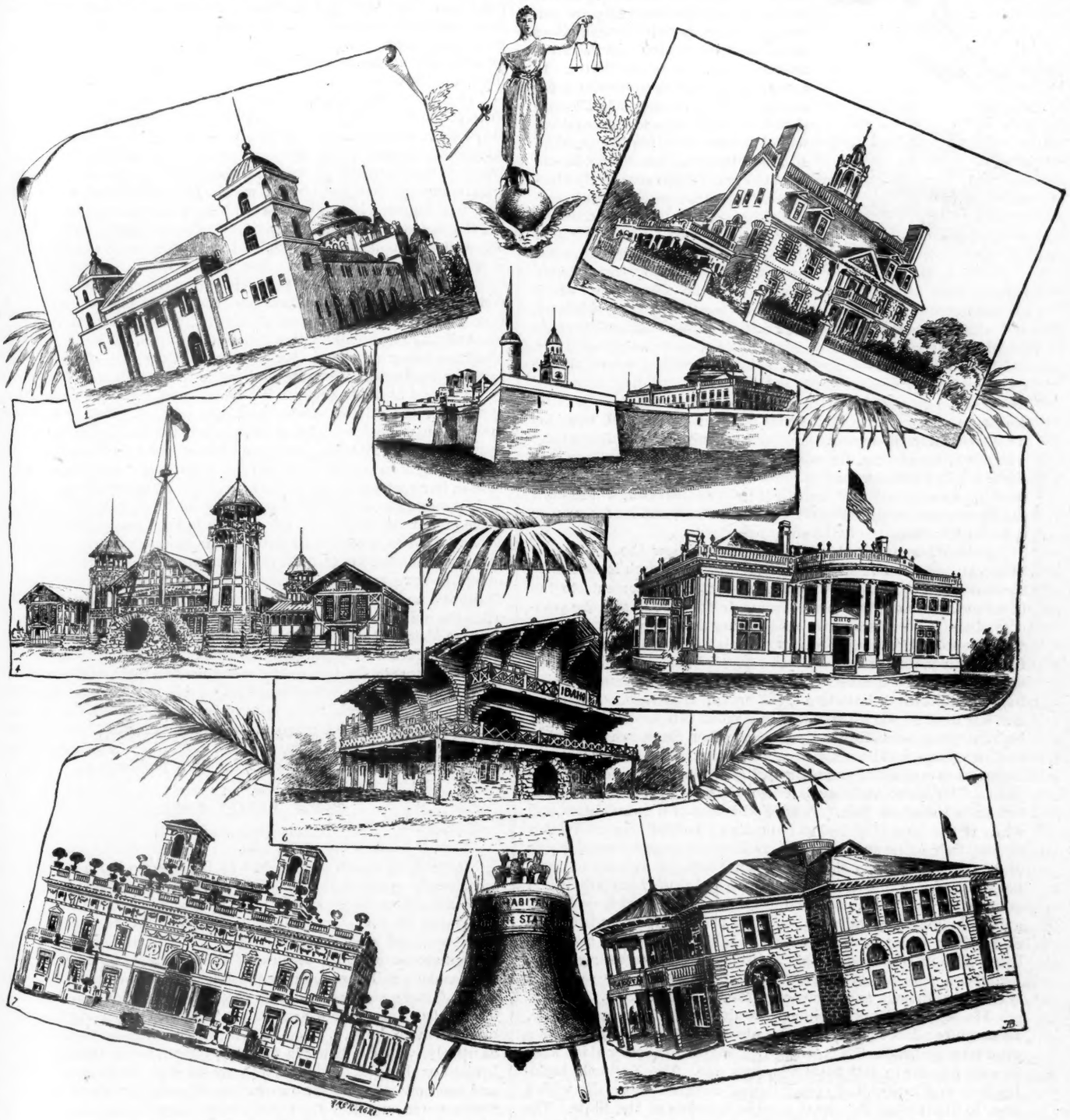

1, California. 2, Massachusetts. 3, Florida. 4, Washington. 5, Ohio. 6, Idaho. 7, New York. 8, South Dakota.

GLIMPSES OF STATE BUILDINGS AT THE WORLD'S COLUMBIAN EXPOSITION.

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AMONG THE STATE BUILDINGS AT THE COLUMBIAN FAIR.

JAMES K. REEVE, OHIO.

IT is a happy idea that leads each of our States to have an individual home at the great Exhibition. To an American, no portion of the ground can be much more interesting than that upon which these buildings are grouped. It is curious to note the difference in design, not only of the exteriors, but also of the uses to which they are put. Some of them are within themselves most excellent exhibits of the products and resources of the States. In many, the most characteristic products have been employed in the construction and exterior decoration, while the interiors are museums of all that is best, and most valuable, and most unique. Others are merely clubhouses, or rather rest-houses, especially designed to afford a comfortable meeting-place for the people of the State, when they have become tired with sight-seeing. Such buildings as these belong for the most part to the older States, which are willing to rest content with the rank which they have achieved, and which leave the struggle for greater consideration and for new population very willingly to their younger and more ambitious rivals.

I do not wish to make invidious distinctions, where all are good, and many are excellent, but the Ohio building may very nearly stand as a model of the clubhouse class. This is of Colonial style, and was erected at a cost of about $30,000. It contains no Ohio exhibits of any sort, unless the furnishing and decorating, which was done by the different cities of the State, may be so considered. The interior has parlors, reading and writing rooms, smoking room, post office, bureau of information, etc., which show the dignity and acquired position of the State, and its far remove from all the necessity of "boom" methods.

As would be expected, the newer States show the opposite of this. Among them exists a friendly rivalry, and each is especially anxious to show wherein it can offer better inducements to the home-seeker than any other. Grains, fruits, woods and the products of the mines here crowd each other for supremacy. Sometimes a special feature is brought prominently and happily to the front, as in the construction of the South Dakota building. This exterior has been finished with Yankton-Portland cement, which has been colored to imitate a light brown sandstone. The intention has been to show by this, that cement can be used here for building purposes as it is in France and other European countries, and, of course, incidentally, to call attention to the fact that South Dakota has unlimited quantities of cement available for all purposes. The Idaho building is one of the most typical and characteristic in the whole Fair. The design is that of a Swiss chalet, and while it has been criticised as indicating a lack of originality, it is difficult to imagine anything that could better typify the conditions of life which exist in that mountain State. It is built of logs, massive and rich in coloring, with stone and brick foundations and chimneys. The wood, stone and brick was all brought from Idaho, and include all the valuable varieties of each found within the State. The furniture is of rustic design, and of Idaho manufacture. The interior is not only a display of the State's resources, but also a museum of aboriginal handicraft, of native skins and furs, of ornithology and of curios of the most varied sort.

The New England buildings are also generally characteristic, although in a less degree than the above. Massachusetts shows a good representation of a colonial dwelling of the better class, such as were popular in that State a century ago. The Vermont building is modest in size and cost, but was designed especially with a view to illustrating the great marble interests of the State. The Maine building is also small, but serves its purpose of showing to good advantage the granite and slate interests of the State. A large amount of these materials was donated by the quarrymen, and has been effectively used in the construction.

The Washington State building is one of the most characteristic and attractive of all, and I caution intending visitors not to leave until they have seen it both inside and outside. It is not only typical in its construction, but is, as well, a complete exposition of the resources of this new State in the far Northwest. The foundation is of native fir logs—not the largest that could be found, but the largest that it was practicable to transport—and they give an appearance of massiveness and solidity to the structure that stone could hardly equal. The main walls and towers are also of large timbers, hewn and oiled so as to show the wood in its natural state. The main entrance is a rockery, and the rocks are low-grade ores with veins of silver, lead and other minerals showing upon their surface. A striking feature of the interior exhibit is the miniature model of a Washington homestead. Here are fields of growing grain, with men and machines at work in the harvest field; plow land with ten gang plows, turning up the mellow soil; farmhouse, and barns, and fences; a stream of running water, and cattle drinking at the trough; and a pasture, with a milkmaid driving home the cows.

The New York State building is modeled after the best structures of the Italian Renaissance, and is a summer palace, unique in character and equipment. It is the most costly of the State buildings, and is worthy of the Empire State and her millions of citizens. The structure is ninety-six feet high, two hundred and fourteen feet long by one hundred and six feet wide. Through the middle of the first floor runs a wide, mosaic-paved hall, with tall columns fronting the women's rooms, the reading and the lounging rooms, post office, cloak rooms, and the like. At the foot of the lower stairway is a relief map of the State. The second floor is a magnificent banqueting hall, with white and gold decorations. The third floor contains the admistrative offices, and the roof is planted as a summer garden, which proves an attractive resting place for visitors. The building represents, with a few modifications, the old historical Van Rensselaer residence, for so long a time one of the most familiar landmarks in the capital of the Empire State.

As I said at the beginning, it seems almost unfair to name any of these State exhibits without naming them all. But one more must be mentioned, and that is the historical collection in the Wisconsin exhibit. The State has been content to let the suggestion of what she now is, rest with her exhibit in the main buildings. But here in her very home she gathers the relics of her past—portraits and manuscript, and old weapons that have done good service. Some of our States are not old enough to have much history, and so are forced to expend their enthusiasm upon the future. So that this invitation to look into the past is in rather striking relief. Two others deserve mention because of their historical significance—California and Florida. The first of these has a building modeled after the old missions, and it is only justice to those mission fathers to remember that they were the first to plant the olive and the vine on the California foothills. So that this exhibit of the fruits of the State is almost in the nature of a monument to their wisdom. The Florida building is an imitation of a Coquina fort, such as tourists now anxiously search for a relic of in the towns where the old Spanish adventurers long ago made their first foothold in the new land—the land of whose progress this Columbian exhibition now marks an epoch. [See frontispiece for State buildings.]

CHOICE MARKET FRUIT.

WEBB DONNELL.

It would be worth a great deal to the average farmer could he occasionally spend a day looking through the markets of some large city where the good, bad, and indifferent products of the farm are placed on sale, the good selling rapidly for good prices, the indifferent and wholly bad selling slowly and at low prices, only being disposed of at all because of the exigencies of the poor who must make a dollar go as far as possible, even if they receive a very unsatisfactory product, and even then it is a question whether they do not oftentimes practice a false economy in purchasing fruit and other farm products, a large part of which must be thrown away as utterly valueless, being in the case of fruit, for instance, wormy, bruised or decayed. If one could go through these city markets and see how small is the proportion of really excellent products that come in, and how eagerly it is seized upon by buyers at a satisfactory price, he would be thoroughly converted to the idea that it pays to produce a good article, and that the market can never be overstocked with products of first quality. Can anyone wonder that the city resident, with money sufficient to buy the best, is discouraged as he sees the second rate articles with which the markets are stocked, and jumps at the chance to pay a good, round price if he can be assured of a constant supply of a really fine

article? He is willing to pay eight cents per quart the year round for milk delivered at his door, provided he can be assured it will be of unvarying quality and produced under conditions of strict cleanliness. He will pay fifty cents a pound for a gilt-edged article of butter that is always gilt-edged, rather than take his chances in the general market at twenty-five cents, and he will pay a handsome price for his apples, his pears, his strawberries or other fruits, if they can be delivered to him in the best of shape and flavor.

So long as there are plenty of people anxious to pay good prices for good articles, it is a shame that more farmers are not wise enough to take advantage of this chance to greatly increase their incomes with very little extra trouble. It is strange that more farmers do not try to make their products of first quality, not only for the extra money that is to be thus secured, but also for the great satisfaction that comes from such results.

In fruit raising, for instance, buy a peck of Baldwin apples in the market of any of our cities and take a look at them. Well, they look undersized for one thing. They are not graded to an even size, for some are fairly large, and some are small. They are not attractive in appearance, for many are irregular in shape and bear evidences of bruises and of the depredation of worms. Let us cut into some of them. Many are green in flesh, although evidently as ripe as they ever would be, showing very imperfect development and imperfect ripening, too many growing upon one tree, and the tree being either crowded by others or crowded in its own branches and foliage. In many of the specimens there are bruised places, and beneath these the flesh of the apple has been made valueless, so that a large part must be wasted in preparing for sauce or pies, between the loss from bruises and worm holes.

Is it any wonder that the well-to-do city dweller prefers to pay a larger price if he can thus secure fruit that has flavor, size and soundness? Is it a difficult matter to raise choice apples? Yes, if one considers, as a difficulty, the exercise of care at every point. No, if the exercise of care at every point has become second nature to the farmer. Care must have been used in the selection of stock; in the selection of the proper place to set the trees; in providing plenty of fertility in the soil; in giving plenty of room for the entrance of air and sunlight, not only around each tree, but into the head of the tree; in thinning the fruit; in spraying the trees to destroy insect life, and care in gathering the fruit to avoid all bruising, and, further, care in handling the fruit until it is packed for market. It is care all the way through, but it is care that doubly pays—in money and in satisfaction, and the same care in any other line of farming will produce equally excellent and remunerative results. The successful farmer is the man who is careful at every point, seeking to produce only the best in whatever direction his time and labor is given. It is strange that more farmers do not take this view of the matter. That they do not, is evident from the character of much of the farm produce sold.

HARVESTING AND MARKETING BROOM CORN.

F. G. HAWKINSON, KANSAS.

To cure the brush so that it is the most valuable should be the aim of every grower of broom corn. In order to do this, it is necessary that the natural green, glossy color that is so highly prized in a carpet broom, should be preserved, and this is best done by cutting the brush while the plant is in bloom. It is also necessary, immediately after the brush is cut off, that it be hauled to a shady place, prepared for that purpose to prevent it from being bleached by the sunlight. Some varieties turn red and others yellow, when left in the field to ripen. Besides being damaged in color, the fiber becomes dry and brittle, and a broom made from ripe or bleached brush will not wear as long nor look so well as one made from green brush, and, as a natural consequence, will not sell so well in the market. But this is not all the loss that the farmer sustains from permitting his crop of broom corn to become too ripe, or bleached, or dry. It will shrink from twenty-five to thirty per cent. in weight. This is a total loss, as nothing can be gained in return for it. The green brush is the only kind that it pays to cure and put on the market.

Breaking and cutting broom corn are both done by hand. When breaking it down, the men walk forward. Each man takes two rows. He bends the stalks about two feet above the ground and lays the stalks down cross-ways behind him at such an angle as will put all the tops or brush hanging outside each row, where they will be handy to reach when he walks back to cut them. Two rows, thus broken down, are called a table. When the men have broken clear through the field, each one steps in between two tables, one of which broken by himself and one by the workman nearest to him. They then commence cutting, which is done with an ordinary shoe-knife, with a very thin blade from six to eight inches long. In ordinary thick broom corn, that stands up well and is not tangled by storms, a man is expected to break and cut a table one mile long in a day, in order to be entitled to full pay. From six to eight inches of the stalks are cut off with the brush for handles. The brush is piled in small bunches something like an unbound wheat sheaf, on every alternate table. After the cutters have gone once through the field, the haulers can commence to haul it to the sheds. The team and wagon are driven straddling the table that has no piles of brush, and on each side of the wagon one man walks to load the brush.

The brush should be hauled to the shade immediately after being cut, and the seed stripped or scraped off. This is done by machines made for that purpose, called scrapers. The brush is fed into a two cylinder chain-scraper held by the chain, and then dropped out at the opposite end. This machine is both the fastest and the easiest operated. Six tons per day can be scraped on one of these horse-power scrapers. Another kind called hand scrapers is used by smaller growers, though it is a horse-power machine. In these the operator has to hold the brush by hand while the seed is scraped off. This is hard work and quite dangerous, and brush cannot be scraped more than one-half as fast. As soon as the brush is scraped it is carried into the shade and laid on poles, or slats, to dry.

The brush must lie on the poles until it is dry enough not to heat after it is bulked down or is baled. The time required for this varies according to the drying condition of the weather. It is considered perfectly safe to bulk down broom corn when no sap can be twisted out of the handles close to the fibers. It will keep fully as well and as long in bulk as in bales.

As most of the large broom and brush factories are located near the Atlantic coast, principally in New York State, it is necessary that broom corn be baled in the most convenient form for shipment. The best size to handle and to get into the cars are bales that weigh from 300 to 350 pounds. They should be pressed tight and bound with five No. 11 or No. 12 wires.

The marketing of broom corn is generally done at home. As soon as the crops are ready to be baled, the dealers and manufacturers send their buyers, who travel through the different broom corn districts and examine each crop before it is bargained for. They are generally carried around by local commission men, who are acquainted with both the country and the growers. After the crop is bargained for, it is delivered at the railroad station to these commission men, who pay the growers for it and then forward it to the purchaser. For this service they usually get $2.50 per ton, which is paid by the purchaser. The largest receiving point for standard broom corn at the present time is at Marquette, Kansas. The prices that have been obtained for broom corn for a number of years past have ranged from two to four cents per pound for straight brush, and one to two cents for crooked. There have been isolated instances where it has brought more than four cents and less than one, but in the main the prices have been as above according to condition of the market and the quality of corn at the different securing points.

The yield per acre varies greatly according to the adaptability of the soil, suitable weather and thoroughness of its cultivation. On good suitable soil, well tended, there has been raised as much as 1,000 pounds of good brush from an acre. But it has also happened, and quite frequently, too, on poor land, that less than 300 pounds has been raised per acre, and when the yield is small the quality is usually poor. Five to seven hundred pounds to the acre is considered to be an average crop. A large amount of hand labor is required, which is always both scarce and high-priced during harvest time, and inexperience has often caused great losses and even entire failures.

For the benefit of those interested, I submit a list of comparative costs and profits. The estimates are based on a scale of prices for labor that usually prevail in central and western Kansas. I estimate a day's labor of one man at two dollars per day, including board, and a man and team at three dollars per day. These prices seem high, but skilled hands can get them, and others are worthless in a broom corn field. The cost of an acre of broom corn is: Rent of land, two dollars; clearing of corn stalks or weeds, twenty-five cents; plowing, one dollar and twenty-five cents; harrowing twice, twenty-five cents; seed, fifteen cents; planting, twenty cents; cultivating twice, seventy-five cents; cutting, five dollars; hauling and

scraping, five dollars; bulking down, forty cents; baling, sixty cents; use of machinery, fifty cents; wire fifteen cents; hauling to market, fifty cents; total cost, seventeen dollars. With highly skilled labor, and under favorable conditions, the cost can be reduced considerably below these figures, but with unfavorable weather and laborers not accustomed to their work, the cost is often much higher. The estimate of cost is made on the basis of a yield of about 700 pounds to the acre. If the yield is less, the cost per acre will be less for scraping, baling and hauling, according to the less amount of brush to handle. The cost of raising and cutting will be the same.

If the yield be 700 pounds to the acre, at four cents per pound, and the cost seventeen dollars per acre, the grower would have eleven dollars profit per acre. If the yield be 500 pounds, and cost fifteen dollars per acre, his profit would be five dollars, provided his brush was of good quality so he could get four cents per pound for it. If the yield was only 400 pounds at three cents per pound, and cost twelve dollars per acre, he would have pay for his labor but no profit. If both yield and prices should be less, it is readily seen that the grower would lose money. The above estimates are made to show how essential it is to raise large yields of good quality, and to handle it so that the highest prices can be obtained in order to make any money at broom corn growing. The cost to raise and harvest a small yield of poor quality is nearly always as high per acre as a large yield of good quality that can be sold at twice as much money. The amount of high priced hand-labor that must be used in harvesting a crop of broom corn, takes all the profit of a poor crop. The man who does not understand the business and does not live in a neighborhood where skilled broom corn hands can be had, had better leave it alone. Those who think they would like to carry it on as a permanent business had better work with some experienced grower until all the details of growing and handling are thoroughly learned.

CARE OF SWINE FOR THE MARKET.

MARION RAMBO, MISSOURI.

Prices for hogs are very good, and on account of the conditions controlling the market, they are likely to continue so for some time to come. At the present market price hogs are the most profitable stock produced upon the farm. Such high prices will give a great impetus to their production, tending to overstock the market, yet from the present outlook it must be some time before the demand can be sufficiently satisfied to reduce prices to the old standard. The different breeds have their several good qualities, and each breed has its own ardent supporters. It will not always do to be guided in the selection of stock by the praise of the breeder. Every man should judge for himself, profiting as much as possible by his observation and experience. The stock of whatever breed should be pure bred, and the breed should be that which is the best suited to the locality where it is to be kept. That breed which does best in one locality may not be the best for another. Poor stock requires as much feed as the good, and profits are much less. The purpose of the hog is to convert feed into pork, and that hog which will produce the most pork out of a given amount of feed is the one wanted. It may cost a little more money to get the best, but it will pay in the end. It is not wise to put corn into a hog that will not make pork out of it, producing only snout and bristles.

The feed for hogs, if ground, will give enough better results than if fed whole to amply repay the cost of grinding. Much of the grain is wasted when not ground. The hog eats hurriedly and does not thoroughly masticate his food, especially where a number are together. Consequently, a large portion of the grain passes into his stomach in a condition unfit for digestion, and fails to be assimilated. With properly prepared food the hog will also be kept in a healthier condition. The greatest cause of indigestion—partially masticated grain—will be removed and the animal will be stronger and will fatten more rapidly. Improper food is a source of disease among hogs which is overlooked by many farmers. If more attention were given to the proper preparation of the food for hogs, we would have much less disease among the herds. The condition of the pens also has much to do with producing disease. Swine are often kept for months in places that are absolutely sickening. Sometimes it is in pens knee deep in filth and mud, the stench of which is a downright nuisance to the whole surrounding neighborhood. It is no wonder disease among them is so prevalent when their lives must be spent in such places. The hog is, by no means, a natural lover of filth. In his natural state he is cleanly in his habits. It is only when forced to it that he becomes the filthy creature often seen. He thrives best near a clean, sandy stream.

Too many hogs should not be kept in the same pen. When a large number are penned together, they are not only more wasteful of their feed, but they are more liable to disease. It will not cost much to divide the pens, increasing the comfort of the animals, saving feed and promoting healthfulness. Wheat makes an excellent feed for hogs. If the price of pork continues as high as it is likely to be, Western farmers, who find wheat easy to grow and yet cannot market it for more than fifty cents per bushel, will do well to convert it into pork, as they will thus get better value.

THE SHEEP'S FOOT.

The sheep's foot is constructed in quite a different manner from that of the horse, which is known as a soliped, or single-hoofed animal. The space between the claws of the double hoof of ruminants is a place of danger, and quite often the seat of disease. And this is more imminent in the sheep than in the ox. This space is protected on the inside by a thick skin, covered with hair, to relieve the friction, but is frequently ground down to the tissue underneath it, by the grit of sandy or gravelly pastures. The horn of the front part of the hoof, too, grows in such a manner as to invite disease, as it extends beneath the sole, when in a soft condition produced by wet ground, and then turns under and gathers filth, which soon corrodes the softened sole, and lays bare the vascular tissue of the interior of the foot, which then becomes diseased by exposure to the ground, and by the poisonous influence of the decomposing matter of the horn. The lameness then begins, that in time increases and spreads to the inner parts of the foot, which suppurate and discharge matter, that acts as an inflammatory poison, and quickly causes gangrene of the whole foot. This then produces a poisonous virus, which affects the soil, and communicates the disease to other sheep whose feet may be in the least injured by overwearing, or softening of the horn, and are neglected by the shepherd. Thus it is imperative that the flock should not only be watched for the first appearance of disease, but examined frequently, to detect approaching danger. The common and effective remedy is to keep all excess of horn pared down, to shorten the toes when they are too long, and to apply an ointment of pure vaseline, slightly carbolated, to any raw or sore parts. The disease known as foot rot, whether simple or malignant and contagious, is easily managed at the outset by this treatment. But when the whole flock becomes diseased, through neglect, and the pastures are permanently poisoned by the virus, the case becomes serious, and thorough measures must be taken to save the flock.

SHORT FURROWS.

Do not run wild after "novelties," let the enthusiast do that. Be content with that which has been tried and found to be good.

Some men who are the most careful about the fit of their own collars are the most careless about the fit of those their horses wear.

Some dairymen "get along" better than others, because they keep their farm buildings painted and the fences at a lawful height.

Cultivation of the soil to kill weeds is poor cultivation, but to cultivate so thoroughly that weeds do not grow, is the science of gardening and farming.

Do not think the garden made when the seeds are sown. There is always something to be done until frost has killed the plants, and after that the pleasure of selecting seeds for another year.

A slight mulching of newly-cut grass on the lily beds will materially increase the size of the flowers, and keep them from premature decay, because it keeps the soil moist and cool. The same will apply to beds of annuals.

A cow will kick back when beaten, and afterward may kick without provocation. While she is in a kicking frame of mind her nervous system is so disturbed that she forgets to give down a part of her milk, and she soon becomes valueless.

Trim shrubs soon after they are done flowering, and do it by cutting out all the old wood, leaving the new growth to flower the next season. Never shorten in shrubs; it destroys their gracefulness. Many of them are ruined in that way.

A dog's usefulness is singularly misunderstood when he is considered valuable merely to drive in the cows from the pasture. Some dogs however, are better to drive cows than are irresponsible hired hands who will thoughtlessly hurl stones and sticks at them.

THE HORSE OF A CENTURY.

EDWIN C. POWELL.

The mighty Ormonde is called in England "The horse of a century," and rightfully so, for horses of his excellence are seen but three or four times in a century. What makes Ormonde of interest to our readers is not so much the fact that he was never beaten, but that he has brought the highest price ever paid for any horse, and his purchaser is a young Californian. Everyone remembers the surprising news of last October, that Ormonde had been sold for $150,000, and was to come to America. His sale forms a very interesting story in itself, for two wealthy turfmen were interested in seeing who could outbid the other. Chas. Reed of Tennessee, who startled everybody by bidding $100,000 for St. Blaise and out-bluffing everyone else when this horse was put up at auction about two years ago, was in Buenos Ayres while Wm. O. B. Macdonough was in California negotiating by cable through the Tattersalls of London. Mr. Macdonough felt like spending the most money and outbid Mr. Reed $15,000, and secured Ormonde for $150,000, the highest price ever paid for a horse. From Buenos Ayres he was shipped to England, where he rested for a time before being shipped to New York, and thence overland to California.

ORMONDE, THE GREAT STAKE WINNER.

A horse without a flaw, is Mr. Reed's generous way of expressing the quality of Ormonde. Certain it is he is a grand type of horse, as the illustration shows. He is a solid bay in color, with a white off hind heel. His conformation is ideal and the look of legginess which he had while young, and which is so often seen in thoroughbreds, has entirely passed away, and he is as strong and stout as anyone would wish. Standing sixteen and one-fourth hands high and weighing 1,100 pounds in racing condition, yet he is beautifully proportioned. In blood lines Ormonde has all that can be asked for. He began his career on the turf when two years old by winning the Post Sweepstakes, following it up by capturing the Criterion Stakes and the Dewhurst Plate. At three years of age, he started and won nine times. At Newmarket, he won the 2,000 Guineas, Minting second; at Epsom, the Epsom Derby of one and a half miles, the Bard second; at Dorcaster, the St. Leger of one and three-fourths miles. He started and won four times the next year, and finished up his racing career with the Imperial Gold Cup, six furlongs, which he won easily from Whitefriar and Lovegold. Ormonde always carried good weight. In his two-year-old form he started with 124 pounds; when three, from 120 to 134 pounds; and the next year as high as 139 pounds, carrying six pounds more than any other horse in one race. The unbroken line of victories were not due to the fact that Ormonde met poor horses. Indeed, he met more and better horses in his career than are often seen on the turf in such a short time. The Bard, for instance, was never beaten until he met Ormonde. Minting was a wonderful horse, and so was Bendigo, and with Ormonde out of the way, no others could compare with these two. Then there were Milton and Paradox, and a score of other fast horses, but Ormonde downed them all and fairly established his claim as the greatest racehorse of the Victorian era. Unfortunately for Ormonde and the English turfmen, the horse developed roaring in his fourth year. He was, however, put in the stud for one season and then sold to go to Buenos Ayres at a reported price of $60,000. He was bred to but eleven mares, and produced the three great two-year-olds, Llanthony, Goldfinch, and the great Orme, whose misfortune of last year was probably the only cause that could have prevented him from winning the triple crown attained by his sire.

Though $150,000 is a high price to pay for a horse, it is easy to see that the purchase of such a great sire as Ormonde, regarded from a strictly business standpoint, is likely to yield very handsome profits to an owner of sufficient capital. Twenty-five broodmares of the highest grade could be bought at an average of $3,000 making the total cost of the stud $225,000. From this collection an

annual return of twenty yearlings would not be too much to expect, and the sale of yearlings from St. Blaise, a horse of much lesser fame than Ormonde, has averaged $6,000 each. This would make an annual return of at least, $120,000. Twenty-five mares could be booked at a stud fee of $1,500, possibly $2,500, which would add $37,500 to $62,500. Should the owner of such a ranch decide to race his horses, he could be pretty sure of making at least $150,000 per year from stakes and sales, and retain the best sons and daughters to continue his stud. The public is not generally aware of the great amount of money put up at the different race courses in this country during the year. The Futurity, Produce and Matron stakes in the vicinity of New York alone amount to $150,000. There are half a dozen of $17,000 each, and at least thirty of $5,000 which makes about $400,000 for two-year-olds alone. Then there are numerous large stakes for three-year-olds and aged horses, besides nearly $1,000,000 of added money put up by the racing associations; so that the annual prizes open to horses in the vicinity of New York, exceed $1,500,000. About as much more is put up in different parts of the country, principally at Chicago, New Orleans and Louisville, Ky. From this huge sum, a string of two-year-olds, and older horses, from such a great sire and race horse like Ormonde, could be easily counted on to gather in $125,000 in a year.

THE MOLTING SEASON.

B. BUTLER.

The hens will be molting freely this month. Some of them may already have donned their new coats, but the majority will be growing the feathers now. Molting is a very exhausting process. The crop of new feathers makes a heavy draught upon the system. It is not, or ought not to be, surprising that few eggs are now laid by the flock. Occasionally a fowl lacks sufficient vitality to molt successfully. It casts its old feathers and partially grows the new ones, and then begins to droop. The new feathers make but little growth, and unless the system be toned up, the fowl may die. Where large numbers are kept, and especially where there are a number of old hens, there are usually several each year that fail to successfully molt.

It is obvious that during molting the hens should be generously fed, and, as the feathers are a nitrogenous product, the food of the fowls should be nitrogenous in character. Hens fed on oats and an ounce of lean beef daily to each hen will molt much more quickly and with less evident distress than when, as is often the case, on corn alone. Corn makes better fat than feathers. We feed too much corn anyway, while corn furnishes carbon and force, and is, therefore, a better food than many are inclined to give it credit for being, yet it is, of itself, not a well-balanced ration. Something besides force is needed to keep fowls hearty and cause them to lay well. Corn is a good element of the fowls' daily ration, but should not be fed exclusively. English writers declare that corn produces liver disease and scrofula in fowls. Whether this is due to the climate of England or the imagination of English writers, is not definitely settled. It is possible that enlargement of the liver may be due to the continued use of this grain, for heat in undue proportions does produce enlargement of the liver.

If, at any time, the use of condiments and special foods is necessary in feeding fowls, during the period of molting is that time. Then, if ever, the fowls need stimulating. Some good breeders make a liberal use of condition powders at this time, and they think that they find it profitable so to do. It is possible that the condition powders, by stimulating the digestive organs and increasing the appetite, enabled the fowls to consume, digest and assimilate more food, and thus directly assisted in the growth of the new feathers. While expressing no decided opinion upon the question, it is safe to say, that during molting is really the best time to feed such powders.

CULLING THE BROODS.

L. BEEBE.

The cockerels should be separated from the pullets, and to each sex of the specimens intended to be kept over, the best possible chance for development should be given. Cull out the imperfect specimens, especially of the cockerels, and get them fat and ready for market. Do not wait for Thanksgiving to come before selling some of them. There is a market for them now. The imperfect pullets, those deficient in size, defective in shape and lacking in correct markings, can be kept for layers, but if there are enough of the better specimens, it pays to dispose of these as dressed poultry, or to some one with less good taste than yourself. The poultry fancier culls his flocks very carefully. For his purposes a part of the flock is more than the whole. He cannot afford to disfigure the appearance of his flock by keeping imperfect specimens around him. Hence he culls and culls closely, and either kills or sells to the practical raiser, for what he can get, the culls of his flock. He wishes to get them out of his sight as speedily as possible.

One of the secrets of successful breeding is the art of culling. To be a good culler one needs to know the breed or variety very thoroughly, so as to preserve the best specimens. He needs, also, to have the courage to reduce his flock to one-fourth or one-tenth, if need be, of its original size. He knows that he can afford to keep only the best to breed from. There is no reason why a farmer should not exercise equal care in culling that portion of his stock reserved for breeding. While he may not care to kill the defective pullets, he still should care to keep for breeding only the best specimens. By annually breeding from the best, the average of the flock can be steadily raised. The farmer can be a fancier, if he likes; he ought to be enough of a fancier to desire to annually improve his flock of fowls. If he does this, he will find that he will gradually become more and more interested in his poultry, and as his interest increases he will take better care of the fowls, and because of this better care, the fowls will become more profitable. Interested care makes profits possible in any branch of agricultural work, and there is no branch that will respond more quickly to good care than the fowls. He will, also, become more and more interested in the art of breeding. Breeding of live stock presents many fascinating problems for solution, and keeps the mind active. The solution with poultry comes more quickly than with quadrupeds, the stock maturing each year, so that poultry are better for investigation than the other farm stock, pigeons alone excepted.

The principles that may be deduced from poultry breeding will be found applicable to the breeding of other live stock. Such questions, at any rate, as whether the male or female exerts the greater influence on size, shape, color, constitution and other characteristics, external and internal, may receive an answer which will enable the farmer to breed his cattle, sheep, swine and horses more intelligently. The solution of such problems would be ample pay for the keeping of the fowls, even if they made no other return. But, fortunately, the fowls employed in these experimental matings pay handsomely for their care. It is not always the case that one can go to school and make the schoolmaster pay for his going, but the experimental breeding of poultry is a case in point. The fowls give the instruction and pay the bills.

AGRICULTURAL FAIRS.

In nearly every county one or more fairs are held each autumn. Farmers and their families should endeavor to spend one or more days at these annual gatherings. There is certain to be something of great interest and benefit to every branch of farming. In fruit or vegetables, if anything of merit is observed, find out the name and price, and test it for next season. Follow the same with grain or other products of the fields. Talk with the producer, if possible, and obtain valuable points or hints that will aid in future labors. Look over the improved breeds of stock, and decide whether a thoroughbred animal could be used in your neighborhood with profit. The machinery and implements will receive their share of attention. You will usually meet many of your friends, and make new ones, and thus add another link to the evidence of why you should attend the fairs, both local and State. Take something with you to exhibit, and whether you obtain a premium or not, you have aided in the display and success of the exhibition, and in the future, by this course, be more deeply interested.

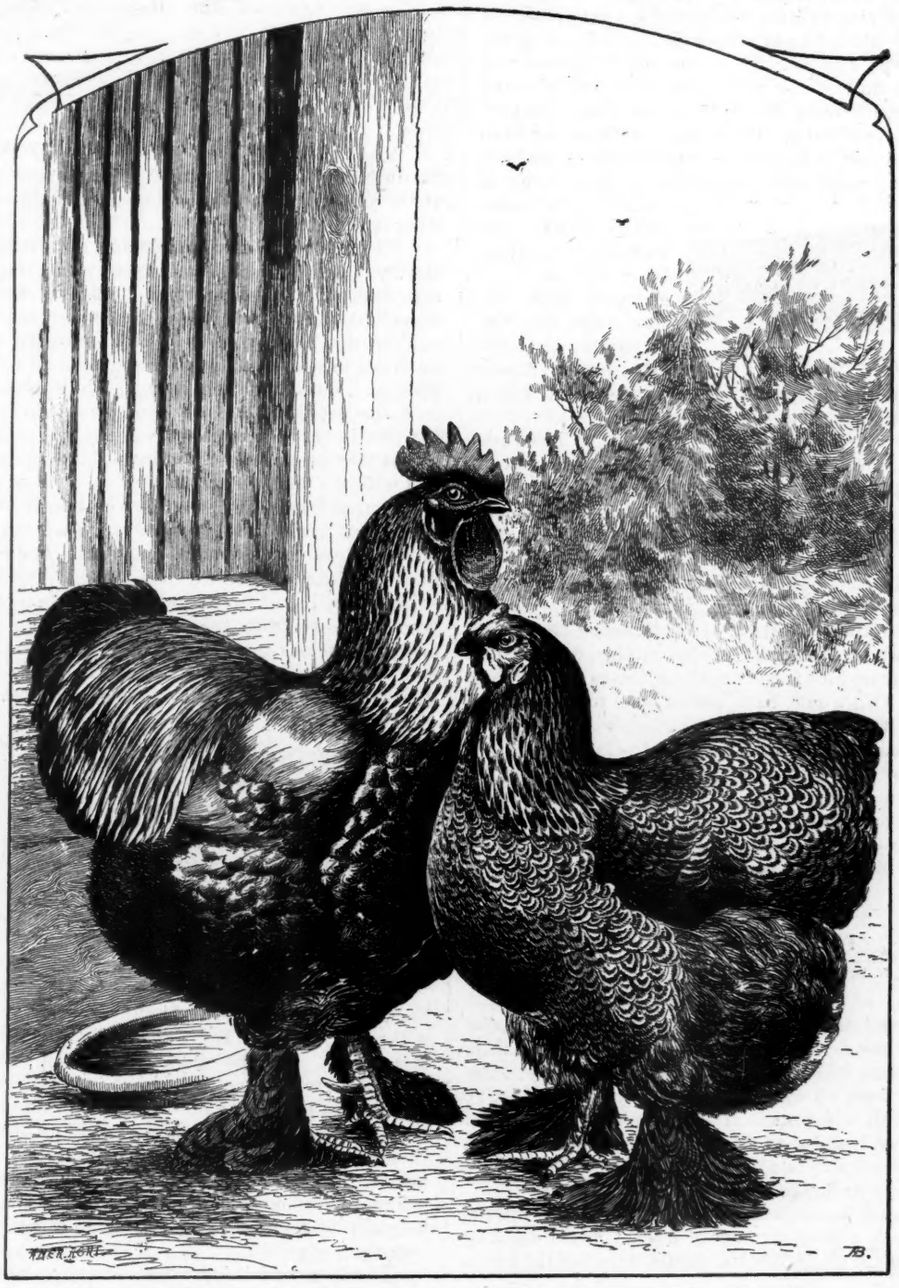
Renewing Pork Brine.—Not unfrequently from insufficient salting and unclean barrels, or other cause, pork placed in brine begins to spoil, the brine smells bad, and the contents, if not soon given proper attention, will be unfit for food. As soon as this trouble is discovered, lose no time in removing the contents from the barrel, washing each piece of meat separately in clean water. Boil the brine for half an hour, continually skimming off the scum and impurities that will rise to the surface. Cleanse the barrel thoroughly by washing with hot water and hard wood ashes. Place the meat back after sprinkling it with a little fresh salt, putting the purified brine back when cool, and no further trouble will be experienced, and if the work be well done, the meat will be sweet and firm. Those who pack meat for home use do not always remove the blood with salt. After meat is cut up it is better to lie in salt for a day and drain before being placed in the brine barrel.

THE PARTRIDGE COCHIN BANTAM.

H. S. BABCOCK.

I hope no practical poultry man will be deterred from reading this article because of its title. It deals with a practical, a useful, a profitable, as well as a handsome, fowl. It is the fashion to look upon Bantams as mere pets; to regard them simply as a luxury, and to overlook altogether their profitable character. But many varieties of Bantams are fully as profitable as some of the larger fowls, and will be found so if a careful debit and credit account is kept. And among them there are few that are really more profitable than the Partridge Cochin. It is somewhat larger than the ordinary Bantam, and it is much easier to get it too large than to get it small enough. There is, now and then, a chicken that is very small, and the natural effort of Bantam fanciers will be to reduce the size. In so doing, they will not make the fowl any more profitable than it now is, and possibly will sacrifice some of its utility. But as now bred, taking the average size, the little fowls really make presentable poultry. They dress nicely, being plump and meaty, with correct color of skin and shanks in the best specimens. The little hens are capital layers of nice brown eggs, which in size will compare favorably with those of the Penciled Hamburgs. The largest of their eggs are of sufficient size to render them marketable. As the size of the fowl decreases, the size of the egg will probably decrease, but Bantams always lay a large egg in comparison with the size of their bodies. The Partridge Cochin Bantam hens are almost ideal sitters and mothers. The largest of them are to be preferred for this purpose, as they can cover more eggs; but any of them will cover quite a number, owing to the length of their feathers. Even the heaviest are sufficiently light to avoid the danger of breaking eggs, which is present when heavy hens are used. They sit faithfully when allowed to do so, inheriting this trait from their large relations. The length and softness of their plumage and their motherly habits make them the best of brooders and care-takers of the young. How to improve upon this variety, without giving it human intelligence, for the purpose of hatching and rearing chickens, it would be very difficult to suggest. This Bantam is not, like others, of a wild disposition and very expert with its wings. Its wing is short, and it could not fly very well, even if it tried to. Its disposition is peaceful and contented, and so it does not attempt to do much flying. The fowl being small and of a quiet disposition, it consumes but a small quantity of food. It also can be yarded and housed at a small expense. Where one Leghorn is kept, two of these Bantams can be kept, and where one Brahma, three or more of them.

If we make up our debit and credit account, charging to the fowl the small expense of housing, yarding and feeding, and credit it with its good qualities as a table fowl, as a layer, and as an incubator and brooder, there will be no difficulty in finding a handsome balance on the credit side of the account. It has seemed necessary to say so much, in order to remove, if possible, the prejudice that some have to all Bantams, by showing why it really can be regarded as a profitable fowl. But it was not originated for the sake of utility, and utility is not its main reason for being. It was originated for the sake of its beauty, and exists chiefly for the same reason. And consider how beautiful it is. It has the blocky figure, the long, soft and profuse feathering, the heavily-booted shanks and toes that characterize all well-bred Cochin fowls. The males are resplendent in their orange or red hackles, striped with black, their deeper red backs, their saddles similar to their hackles, their black breasts, bodies and tails, their wings a combination of deep, rich red and glossy black, the bar across the wing being especially full of luster. The females, in their ruddy brown suits, with the feathers, line within line, accurately penciled with black or darker brown, are almost as handsome as their gaily-colored mates, and by some regarded as even handsomer. If it be worth while to originate and cultivate new varieties of roses and chrysanthemums, which can repay for the labor bestowed upon them only with their bloom and fragrance, and that for but a small part of the year, how much more must it be worth the while to keep such living and moving manifestations of beauty as the Partridge Cochin Bantam, which, so to speak, bloom all the year around, and pay handsomely for the privilege of so doing. No flower is of a richer hue than are the colors on the males; no petals are arranged more accurately than the pencilings upon the little hens.



A PAIR OF PARTRIDGE COCHIN BANTAM FOWLS.

The Partridge Cochin Bantam originated independently in two countries, and by the efforts of two breeders. In England a Mr.

Entwistle, through careful crossing and selection, produced some admirable specimens of this variety, as he has, indeed, of other Bantam varieties. Some of these have been imported into this country, and it has been the pleasure of this writer to see them. The males were especially excellent, better than the females, in fact, although both sexes were fairly good. In this country the variety was originated by this writer, which perhaps may account for some of his enthusiasm on its excellence, and may lead the readers to properly discount the statements he has made. The work began by breeding, very late in the season, some Partridge Cochin chicks, from a pen of fowls of large size. Two of these chickens were quite small, and one, a pullet, was mated to a very dark red Pekin Bantam cockerel—almost a partridge-colored bird—all of the eggs of which were saved and set. To secure the fertilization of these eggs, the tail and fluff of the pullet was carefully trimmed away. About half, or rather more than half, as nearly as I can now recollect, of the eggs proved fertile. From these chickens and from another small Partridge Cochin hen, which was obtained by judicious matings, by killing many and saving few, by persistency in trials and disappointments, the Partridge Cochin Bantam at last emerged with the true color and the correct shape of the large variety. There were many times when the temptation to stop was great, but a dogged determination to succeed at last won.

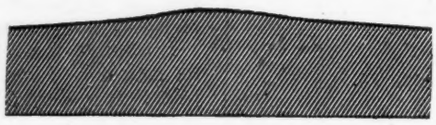


FIG. 1. EARTH WALK.

Comparing the English and American varieties, as has been done in the show room, the former, a few years ago, was better in the male birds, particularly in the stripe of hackle and saddle, while the latter easily beat the former in the ground color and the penciling of the pullets. In shape and size there was little to choose. But in the past few years the American males have greatly improved, and perhaps the same is true of the English females, so that probably to-day both sexes would be nearer alike than they were when they competed together for prizes. It is fortunate that these two distinct strains exist, for it affords the opportunity, whenever it becomes necessary to introduce fresh blood, to obtain that which is entirely unrelated. This would have been a boon to breeders of some fowls, who have been obliged, to prevent the absolute destruction of the breed, to resort to an outcross with a fowl of an entirely different breed. To breed out the antagonistic qualities, and to bring back the resulting progeny to a thoroughbred state, takes much time. But where, as is the case with the Partridge Cochin Bantam, there are two distinct, unrelated strains of a variety, the introduction of fresh blood is unattended with any mongrelizing tendencies.

FARM WALKS.

L. D. SNOOK, NEW YORK.

Properly constructed sidewalks along the streets, and walks about the premises, if not an indispensable necessity, are certainly a great convenience, and add to the value of any property. The simplest and cheapest form of walk is a pathway of earth (Fig. 1). Earth walks answer well when made of sandy or semi-gravely soil and rounded up to absorb and shed rain quickly. A clay soil walk four feet wide should be made two inches higher in the center, to admit of prompt surface drainage.

A single plank walk is made as shown in Fig. 2. Where the planks meet, end to end, a piece of plank or piece of wood, eight or ten inches longer than the plank is wide, should be imbedded in the

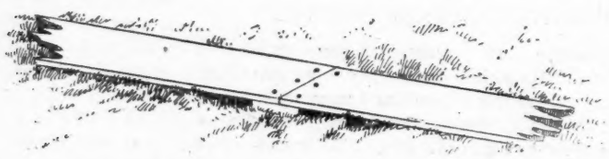


FIG. 2. SINGLE BOARD WALK.

ground and the plank firmly nailed thereto, and for a plank fourteen or more feet in length, two cross pieces should be used between the ends.

To allow two to walk abreast, where there is considerable travel, two planks may be used, placing them parallel and about one foot apart (Fig. 3). This, with one foot plank, makes a walk three feet in width, and will be found cheap, convenient, and if made from white pine, or other wood not liable to warp, the surface will remain level for a long time. When using two or more planks placed parallel and running lengthwise of the walk, arrange to have the ends meet on separate cross-pieces, as this plan adds to

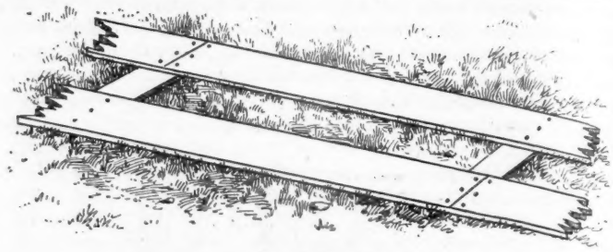


FIG. 3. DOUBLE BOARD WALK.

the durability of the structure. These single or double plank walks are very convenient when connecting the house with the barn or other outbuildings.

Where flat stones are obtainable, no matter if they are of irregular form and not more than a foot square, they will, when properly laid, make a most durable and efficient walk. Always lay the smoothest side upward. Press them firmly into the soil, laying them as close together as possible, fitting small flat stone in the spaces, for if not thus occupied, in the course of two years grass will come. This, on a much traveled walk, is no detriment, but unless much used the grass will prove a disadvantage in rainy weather or when the dew is on. Sometimes a walk is laid with cobble stones, but unless they are less than two inches in diameter, or are broken and laid with the flat side up, they prove a most disagreeable thing to walk on, and grass and weeds are certain to get a foothold.

Gravel walks and drives for lawns are much admired by some, but they are expensive to construct. For a permanent walk or driveway, excavate to the depth of eighteen inches, filling in with small flat or round stones to the depth of one foot; these should be pounded down until they are firm. Fill in three inches more of broken stone or coarse gravel from half an inch to an inch in diameter, cover the whole with well sifted finer gravel to the height desired for the upper surface of the walk (Fig. 4). If gravel cannot

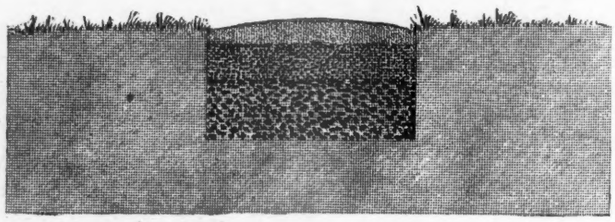


FIG. 4. SECTION OF WELL-BUILT GRAVEL WALK.

be obtained, broken slate stone will answer; that of a dark color will prove best, as it is not so readily dissolved by the action of the atmosphere. All the stones and gravel used should be as free as possible from earth, as the object is to prevent the growth of grass or weeds in the walk; however, if they should become established, they may be killed by a heavy sprinkling of common salt, or where they are few and scattering, a strong brine made boiling hot, if applied in a dry time, will kill them root and branch. A strong solution of lye or potash will accomplish the same purpose. They may also be removed by pulling or digging, but the latter should be avoided if possible.

Hard burned brick, when properly laid, make a good durable walk, the particular objection being the liability of particles of brick to adhere to the bottom of shoes and thus be tracked into the house, but that is not observed in the improved bricks that have a surface almost as hard as glass, and some material is often added in mixing that, when burned, gives a density almost equal to stone.

Water and Shade for Cows.—Be sure that the cows have plenty of pure water. Do not oblige them to drink from stagnant pools. They enjoy pure water as much as human beings do. The pasture should be provided with shade. If no trees are growing there, make a rude shelter of boards roomy enough for all. The shady side of a rail fence is a poor place for a milch cow, with the thermometer at ninety degrees, and a burning sun with no breeze.

RELIEVING CHOKED CATTLE.

Cattle frequently become choked by attempting to swallow a whole potato, turnip or apple, and unless discovered in time, death often ensues, and the attempt to remove the obstruction is often a failure. If the obstruction can be felt part way down the throat, one man should grasp the gullet and windpipe firmly below where the article is lodged. Another person should run a fork or rake handle, having the end blunt-pointed like a four-sided pyramid, down the animals throat and gently strike the obstruction, each time giving the stick a quarter turn that the obstruction may be broken. After a dozen strokes, press hard on the obstruction, gently turning the stick around in both directions, remove it and if you find small pieces in a hole bored near the point of the stick, proceed as before. It will take but a moment to make a hole through even a hard apple. When this is done, the choking is

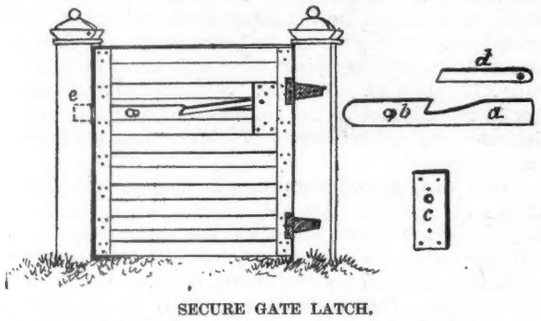
INSTRUMENT FOR RELIEVING CHOKED CATTLE.

greatly relieved. The obstruction can be crushed by heavy outward pressure on the windpipe, or by giving a dose of melted lard, or cotton-seed oil. Should the obstruction be far down toward the stomach, it is best to break it up or make a hole through it before trying to force into the stomach, as the latter often takes a heavy pressure to do this, and pressing so hard may cause internal injury. It will be observed that the form of the end of the stick prevents any injury to the windpipe.

A SECURE FASTENING FOR A CORRAL GATE.

J. L. TOWNSHEND, UTAH.

In the far West, a barnyard is called by the Spanish name, corral. A gate to a corral that is proof against being opened by swine or cattle should always be provided. One that is excellent for security, and that can be easily constructed by any farmer, is shown in the illustration. It may be of any desired width, but if over three feet wide, it should be provided with a diagonal brace, extending from the lower hinge corner to the opposite upper corner. The gate is made of one-inch lumber, four inches wide, with bottom pieces six inches wide. The vertical cleats on the sides are double, and secured by wrought or wire nails, driven clear through and



SECURE GATE LATCH.

clinched. A sliding bar, *a*, with peg, *b*, extending through for a handle, is notched on the upper side, and placed between two of the gate bars. Two cleats, *c*, of one-by-six inch stuff, are nailed across two bars on the hinge side of the gate. To these cleats a drop catch, *d*, is fastened by a wooden pin, so that it will allow the sliding bar to traverse beneath. When the sliding bar is pushed forward into a mortise in the post, the catch falls into the notch, and no cow or horse can possibly remove it.

FOOD FOR GROWING STOCK.

The feeding of young animals is a very important part of the business of a farmer and requires study, for two especial reasons. One is that what is lost by neglect in the youth of any animal can never be regained by any future care and liberality; and the second that a young animal in its early life is only able to digest food under imperfect conditions. The stomach and other digestive organs of a young animal are fitted at first only for the digestion of milk, and this must be its staple food for a much longer time than is the custom to provide it. It is only when the teeth are formed and fit for use that the parotid glands and pancreas begin to secrete the substance that is needed for the digestion of any food that contains starch, for starch is not itself absorbed, but only as it is changed into sugra by the action of this fluid. Thus it is only courting danger and

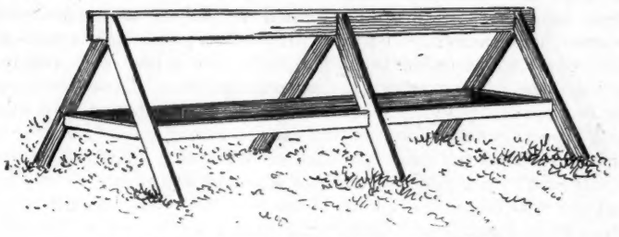


FIG. 1. WESTERN FEED-TROUGH FOR SHEEP.

attempting impossibilities to try to rear a healthy and profitable calf without milk, unless by the use of some specially prepared foods that may be digestible by the young animal. This fact accounts for the invariable diarrhœa that follows the use of any kind of grain foods in the feeding of young calves, and proves the necessity for as long feeding with milk as may be possible.

A NEBRASKA MUTTON FACTORY.

GEO. W. FRANKLIN, IOWA.

During a recent visit in Nebraska, I had the pleasure of visiting one of the great sheep feeding establishments of that State. There are many such, and some of them have capacity for feeding large

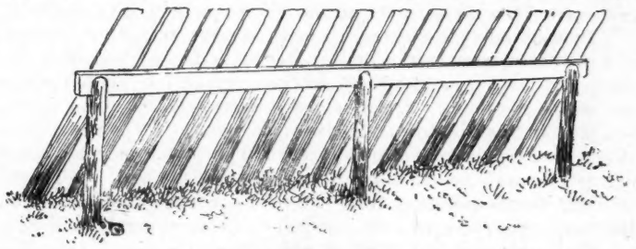


FIG. 2. HAYRACK FOR SHEEP.

herds of sheep. A modern sheep-feeding establishment is not unlike one of the great market stock yards in appearance, except that there is no shelter provided for them other than the hay racks used on the place. There are two separate lots for each flock of sheep ranging from 500 to 1,000; establishments where 20,000 to 40,000 sheep are fed have lots of the same proportions. One of these lots is fitted up with feeding troughs of a peculiar pattern (Fig. 1), which are placed in such a manner that the feed can be easily distributed from a wagon, and at the same time are far enough apart to permit the sheep to get to them readily. The feed is put in before the sheep are turned in, which is done through many large, wide gates opened by a wire which opens all of them simultaneously, upon which the sheep rush in pell-mell to the grain. When they have eaten, they are put back again in the other yard. In this yard the sheep remain the greater portion of the time. Here is found the water, which is supplied with wind or steam power, and is conveyed through pipes into the various yards and let out in large

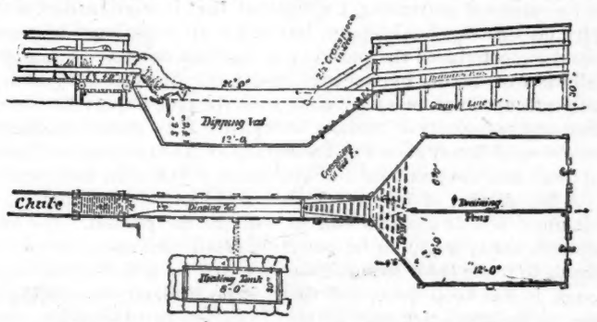


FIG. 3. PENS AND VATS FOR DIPPING SHEEP.

troughs or tanks. The salt is also found in this lot, as is also the hay. The kind of hay used in most of the places is made from the native slough grass. The hay racks, each sixteen feet wide, usually extend on all sides of this lot, and consist of six-inch fence boards about eight feet in length, inclining inward, and placed about eight or nine inches apart (Fig. 2). Large quantities of hay are hauled

in at one time, and it is spread out morning and evening where the sheep can reach it. The racks, which also serve as fences, are made eight feet high for the sheep; being bedded with straw the lot fills in about two feet in depth during the feeding season.

Owners of these establishments usually buy their sheep on the great ranges in spring, and the animals are driven to the railroad points. This sometimes requires all summer, and they arrive at the feeding places in the fall. The flocks are driven very slowly, and get their living along the route by grazing. Upon reaching the feeding establishments they are invariably subjected to a dipping process, whether there is any disease among them or not. It is most frequently the case that they need dipping, for sheep in the range country are seldom free from scab. Sheep shearers carry it, and the railroad cars, shipping points, and the ranges are infected. The scab and scarcity of grass, or of water, are the two drawbacks to the sheep business in the far West.

These dipping places are often quite elaborate and expensive, and are so constructed that the sheep swim through the dip instead of being dipped by hand (Fig. 3, Page 505). The enclosures at either end of the swimming ditch are made to suit the purpose intended. At one end of the ditch are a series of pens and gates made in a most substantial manner, one of which opens into the entrance to the swimming vat. This is about five feet deep, constructed so as to be very narrow at the base, and just wide enough for a good-sized sheep to swim along at the surface. In this is placed the mixture of sulphur, lime and water in proportionate parts, and the dip is kept at a high temperature during the process of disinfection. At the other end of the ditch the pens have water-tight bottoms which incline toward the tank, and the dip which drains from the sheep as they come out runs back into the tank.

To carry on this business requires a great amount of capital, and the entire time of the one who engages in this branch of the sheep business is employed in buying, driving, dipping, feeding and selling his sheep. When sent to market they are run out in lots of from five cars to a train load. The entire flock is seldom run at one time for the reason that if a small lot should meet a glutted market, it would be less disastrous than a larger one. During the summer, teams and men are engaged in drawing the manure on the farm which produces the corn fed to the sheep in the winter.

The feed employed at most establishments is corn, though a few of the feeders use oats, and some of them have mills on the farm which crack the grain. The amount is about two bushels of shelled corn a day per hundred head. The sheep cost about $1.75 to $2.50 per head on the ranges, and are of Merino foundation. This business has been very profitable in the past when sheep could be bought at prices named above, but they are getting so scarce that it is almost impossible to get them as cheaply as that, and the margins are much narrower in consequence.

APIARIAN EXHIBITS AT FAIRS.

W. Z. HUTCHINSON, MICHIGAN.

There has been, in times past, some opposition to the exhibition of bees, honey, wax, and implements, at our State and county fairs and other exhibitions. The objections were based upon the ground that such exhibitions were usually made by dealers in supplies, who, in their eagerness for business, did not hesitate to urge people to become bee-keepers in order to effect sales. If the result really was an excess of producers, I will admit that it might inflict some injury on existing bee-keepers; but, after an experience of many years, I am convinced that nothing of the kind occurs. In fact, the exhibition of hives, implements, and large quantities of honey, neatly put up, impresses the public with the true importance, magnitude and perplexity of modern bee culture. As usually managed, these bee-and-honey shows call attention to the excellence of honey as a food, and the producer and consumer are brought face to face.

A fine display of honey, together with its sale in fancy packages, must benefit the exhibitor as well as the pursuit. For such purposes, honey ought to be put up in small packages. It may be difficult to make these so small that one can be sold for five cents, though it has been done, and there is no difficulty in putting up honey in packages that may be sold from ten to twenty-five cents each. One year, at the Michigan State fair, Mr. H. D. Cutting sold nearly forty dollars' worth of honey, put up in pound and half-pound square glass bottles, and in small glass pails. Last fall, at the Detroit Exposition, at least eighteen hundred pounds of "honey jumbles" were sold by three exhibitors in the bee and honey department. These "jumbles" are cakes made with honey, in place of sugar, and the honey used is of a low grade. Their sale is rapidly increasing. Neither ought the social feature to be overlooked, and it would be well to have one day set apart as "Bee-keepers' Day." I doubt very much whether the exhibition of bees at fairs is of any great advantage to exhibitors. The most that can be said is that they attract attention. But there is certainly no necessity for exhibiting full colonies. A single-comb nucleus, with a queen and a few drones and workers, together with brood in different stages of development, can be made to show more that is really interesting than can be shown with a full colony.

Extracted honey must be shown in glass. Not in common green glass, but in white flint glass. Have tinfoil caps over the corks, and small, tasteful labels. Aim to get a white or light-colored background for extracted honey. A dark color gives it a muddy or dull appearance. A pyramid of extracted honey, in bottles, in front of a window, is a beautiful sight, the light shimmering as it passes through the bottles and their contents. Comb honey must be in cases, with glass next the comb. All honey should be shut up close, and no stickiness left on the outside of packages, to tempt any chance bees that may be flying. Wax should be molded into fanciful shapes. Honey and wax should be piled up in pyramids, or in some striking shape. Let the beginner not try to show a great multitude of things, but let what he does show be as good as possible. Competition is so very keen, at least where the premiums are liberal, that it is folly to expect premiums upon second-class products. I think bee-keepers would prefer to have "supplies" included in the premium list, but the managers of fairs have decided against offering premiums on implements, on account of the difficulty of securing satisfactory decisions. The best we can do is to have a "sweepstakes" premium offered upon the largest and best exhibition; then supplies will count.

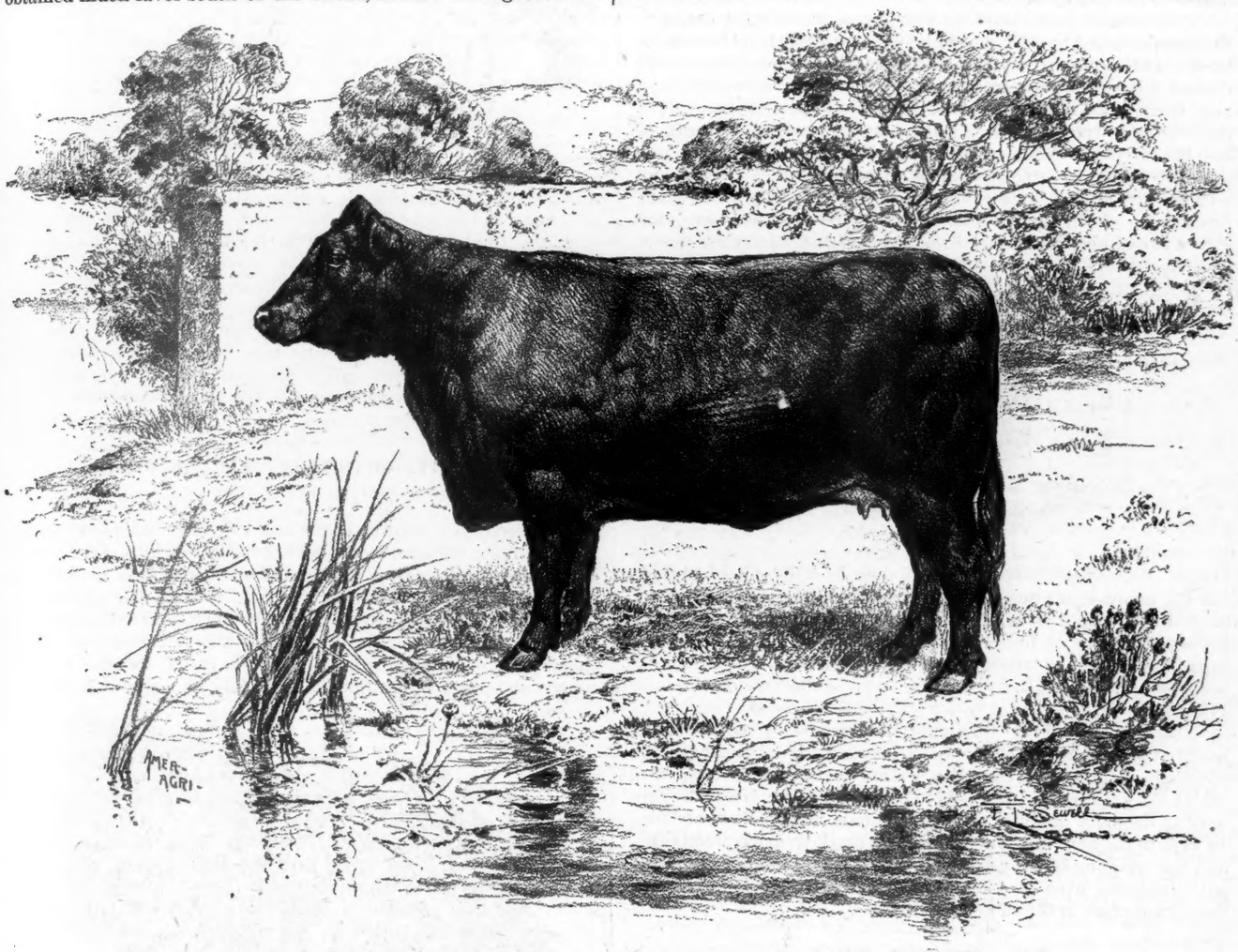
Judges should never be compelled to take an exhibitor's word for anything. Let the article exhibited show for itself. It is not well to offer premiums on samples of different kinds of honey, when they can be so easily gotten up for the occasion by mixing. Neither should there be put at the head of the list such requirements as, "Honey must be of this season's crop;" or "Must be the product of the exhibitor," when there is no way of knowing whether they are lived up to. In my experience, one man to award the premiums, and he an expert, has given better satisfaction than three judges. It is difficult, and often expensive, to get three men who are experts, and, even then, the work is not always done so conscientiously, because the responsibility is divided, each being able to shield himself behind the other two. Judging may best be done by the aid of a "scale of points" for deciding in regard to the merits of exhibits. Particularly is this true in regard to honey, Miss West, of Michigan, has suggested the following, which I heartily second: Honey—color 5; body, 5; flavor, 5. Comb—straightness, 5; color of capping, 5; completeness of capping, 5; uniformity, 10; style 10. Total 50. By uniformity is meant the closeness of resemblance in the sections composing the specimen. Style includes the attractiveness of the section and case, also absence of propolis.

One more word to the beginner. If making an exhibit at a fair, do not get excited. Do not worry. Keep cool and have patience; and, above all, do not let the loss of premium so "sour" you as to spoil your own enjoyment and that of your comrades. When you leave home, have everything in readiness, as nearly as possible, to put up. Pack everything carefully, but in such a manner that it can be easily and quickly unpacked and repacked. If possible, go with your exhibits, even if you are thereby obliged to ride in a freight car. I have done it many a time, and enjoyed it, too. And, when the fair is over, do not make frantic efforts to get off the grounds the very next minute. At the close of a large fair, an immense amount of goods are on the grounds; they have been several days in accumulating, and it is impossible to move them all in an hour's time.

The Deliquescent Property of Fertilizers.—Some substances have a great affinity for water, taking it freely from the air. This property of liquidizing is one to be taken account of in considering the value of these forms of plant food. The nitrates possess it to the largest extent, salts of potash are almost as deliquescent, and gypsum or land plaster and artificial fertilizers generally have this property. Thus it is useful to apply fertilizers in the dryest time, for the damp air of the summer nights will supply all the moisture needed to dissolve them, and make them available for the crops. As soon as any soluble substance is dissolved, it spreads through the soil by diffusion, and thus the effect of a light topdressing of fertilizer shows its effects in a few hours after it is made.

THE QUEEN'S ABERDEEN-ANGUS PRIZE COW.

The list of officers and members of the Royal Agricultural Society of England is always headed by one name, "The Queen." Whatever changes may occur from year to year in the society, Victoria remains its gracious patroness. Nor is it a merely nominal patronage, for she manifests a constant and active interest in everything that pertains to agriculture. Her dairy at Windsor is a model one, as was shown by an illustrated description published a few years ago in the AMERICAN AGRICULTURIST. She is a very successful exhibitor of pure-bred animals in the leading agricultural fairs of the United Kingdom, her Shorthorns being especially conspicuous as prize-winners. The later triumphs in these classes were won by Shorthorns of Scottish origin. The queen's taste for North British stock is still more emphasized by her herd of Aberdeen-Angus cattle. This sturdy and peculiarly Scottish race has obtained much favor south of the Tweed, and the intelligent interest shown by the queen has contributed much to this end. The accompanying illustration is an accurate portrait of the queen's Aberdeen-Angus cow, Miss Pretty (12313), which won the challenge cup last year. As will be seen by the engraving, the cow is a model of symmetry as a representative of a beef breed. Her full crops, massive quarters, fine bone and neat head, all proclaim her "a queen of the doddies."



MISS PRETTY, THE FAMOUS ABERDEEN-ANGUS COW.

Clean the Wagons Frequently.—Any vehicle that is allowed to remain spattered with mud for weeks and months is wrongly treated. The luster of the varnish rapidly deadens, the oil is absorbed from the paint, and when the dirt is removed by washing, the vehicle presents a grimy appearance. Driving a wagon covered with mud when the roads are in good condition presents to the observer that you either are shiftless or extremely busy. However if you are busy with your work, and of course attending to it, for the money or profit to be gained thereby, you would find it a paying investment to spend an hours' time in removing the mud, also properly oiling the axles of both heavy and light vehicles. In washing a wagon it is best to apply water to the muddy surface several moments before the sponge is used. If a force pump or hose can be used most of the dirt can be thus removed, and will not scratch the surface, as the sand on a sponge or rag will do.

GRADING UP A DAIRY HERD.

D. WORCESTER, MAINE.

There are hundreds of dairymen whose means are too limited to admit, as they think, the purchase of other than native cows for their herds. This is especially to be seen in the case of those just starting out in dairying, who hope to possess sometime, an exclusively butter herd. The common advice to such as must perforce begin with native stock is to grade up their herd with a dairy bull, and the advice is sound if only some further suggestions are added that may help the breeder to avoid mistakes and prevent his discouragement by results that are frequently met in pursuing this grading-up course. In the first place, it ought to be earnestly maintained that the Jersey, Guernsey or other bull selected for this purpose shall have an ancestry noted for its butter-producing characteristics, for prepotency is of the greatest importance here, where dairy blood is to mingle with that which may possess very little of the butter-producing trait. It is just here that disappointment often comes in attempting to improve common dairy stock.

The male is frequently selected because of the low price at which he can be bought, on the mistaken notion that a "Jersey is a Jersey" or a "Guernsey is a Guernsey." There are good and poor specimens here as in all breeds, and a fair price paid for a bull that is well-bred in butter lines will prove much the most economical course of procedure in the end. But this is not all. A well-bred bull that, crossed with good females of his own breed, would beget progeny excelling in dairy qualities, when crossed upon natives.

may get daughters that will scarcely appear to be any improvement upon the original stock, and the reason for this ought to be known to all who attempt to grade up a herd of common stock. A native cow may, by nature, be inclined to appropriate the fats in her food to the laying on of flesh, rather than to the secretion of butter solids. Her nature may be inclined toward the production of beef rather than butter, and the butter instinct, so to speak, of the dairy blood, when mingled with hers, may be largely neutralized and the resulting offspring appear, by the test of the milk-pail and the churn, to be no better than the native cow herself. If, however, this half-bred progeny be now mated to a dairy-bred sire, there is reason to expect that a very considerable improvement may appear. The first cross has, perhaps, only neutralized a strong non-dairy bent of the native's nature, but thereafter in the line of descent, the strong dairy bent of the dairy blood will be less and less opposed in its influence, and successive crosses will bring grades nearer and nearer to the quality of the sire.

First crosses may, therefore, sometimes prove disappointing to the inexperienced breeder, but if he is encouraged to persist in his effects, and carries his grading on to successive generations he will recognize the ample rewards that follow such an introduction of good dairy blood into the herds of natives so common throughout the country. The dairyman wishing thus to introduce better blood into his dairy can do so in no more inexpensive and satisfactory way than to send to a reliable breeder of thoroughbred dairy cattle for a bull calf from an ancestry on both sides that has proved its excellence at the churn, and as the producer of cows that have thus shown excellence, the farther back the record for dairy excellence goes, the better. An inferior bull may, it is true, be thus obtained,

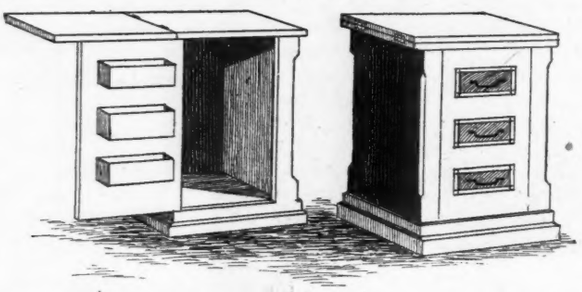


FIG. 1. TOOL CHEST OPEN. FIG. 2. TOOL CHEST CLOSED.

but the chances are against it, so far as chances go in this world. Such a calf would soon become fit for service, and if he should prove to be a sire of butter qualities could well be kept to cross upon the heifers obtained by the first mating. This much of in-breeding will be entirely safe, the more so because of the mingling in the first mating of such very dissimilar blood.

One point should be thoroughly understood by the dairyman, and that is, that a long step may be taken toward immediate and excellent results by a careful selection of the native cows with which the grading-up procees is to begin, for there is a wide variance in the dairy qualities of even common stock. Let only such be kept in the herd as show evidence of marked dairy proclivities, and the mingling of the new blood with it will be likely to be markedly apparent, even in a first cross, and increasingly and abundantly apparent in the subsequent crosses.

THE FARM TOOL CHEST.

A neat combination tool chest and bench is shown herewith, engraved after a sketch by Hollister Sage, which anybody can make who is at all handy with tools. An excellent feature about it is, that it occupies but little room when closed ,and is neat enough to stand anywhere. Of course it can be made of walnut or ash, and of new material as expensively as desired, but if it is for utility and one only wishes to make it as cheaply as possible, pay ten cents for a strong, new dry-goods box about two feet square by three feet long. Take off one side, cleat it for a door, hinge it in place, and the chest is begun. The hinges must be so strong that when the door is opened wide it will support a portion of the top, which is to open and lie upon it. Next cut boards and nail them to the bottom of this box, so that they will project two inches beyond it on all sides. Now chamfer and sandpaper their edges smooth, then procure some cheap molding and nail it to the box and bottom to conceal the bruised edges of the box and the crevice between the two. The top must now be served in the same manner, excepting that instead of having one thickness of boards there must be two thicknesses hinged together at the left, so that when open the upper portion, which should be of one broad, handsome board, will lie upon the open door of the chest top side down. These top boards must not be nailed to the top of the box. The top must be attached by hinges at the right side, and a heavy cleat must be put upon its under side, just within the chest at the left. This allows one in

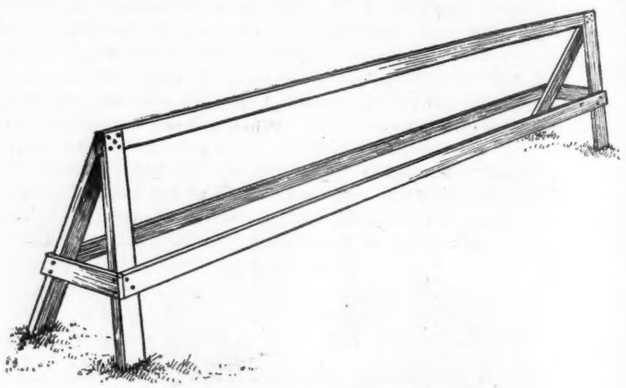


FIG. 1. HORSE FOR SHOCKING CORN

search of a tool to lift the top at the left and stand it up to the right. Saws, mallets, chisels, gauges and planes may be placed on end, hung on brackets, or placed in deep compartments six inches from the front of the chest. This front portion of the chest is occupied by the door, and trays attached to it for holding nails, screws, bolts, and small tools like rivets, scratch-awl, punches, files, chalk, or twine. If made of pine, the chest can be neatly stained to resemble cherry or black walnut, and after it is completed and sandpapered, the sides may be paneled, and the door adorned with handles and squares in imitation of drawers if desired. [At Fig. 1, in the above illustration, this handy farm tool chest is seen opened, and in Fig. 2 closed.]

IMPROVED METHOD OF SHOCKING CORN.

FRED GRUNDY, ILLINOIS.

Sixteen hills in a square of prairie corn are considered a standard shock. When the corn is tall and heavy, sixteen hills make a shock that will stand till spring, if a band of binding or wool twine is tied around it two feet or so below the top. If these big shocks have time to cure well before much rain falls, the fodder will keep bright and nutritious five months, or longer. The principal drawback to this method of preserving corn fodder, is the destruction wrought by rats and mice, which find in these shocks a grand harbor and

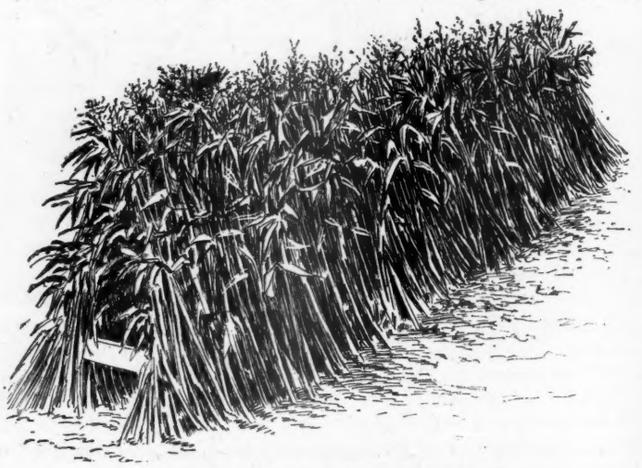


FIG. 2. IMPROVED CORN SHOCK.

plenty of food. The large size of the shocks and the compactness with which they are built, effectually prevent dogs and cats from getting within them and destroying the vermin. Rats and gophers often honeycomb the ground with holes under and about the shocks, piling the earth high up inside among the stalks, then when the ground freezes it becomes a difficult job to take the shocks down.

Alexander Jones, who annually cuts forty to eighty acres, adopted a device which effectually prevents vermin from infesting his shocks to any great extent, while at the same time it greatly facilitates the curing of the fodder. The material is pine, all light

one-by-four inch stuff, and is fastened together with wire nails clinched. They are twelve feet long, yet so light that they are easily handled. When set up in the field two of them are placed end to end, making the shock twenty-four feet long.

The corn is cut with a sled harvester drawn by two horses. A sharp cutter, fastened at the side, cuts the corn which slides down a guard into the arms of a man who loads it. These "corn-horses" are set a proper distance apart, in a row, and when the sled is loaded it is drawn to the nearest one and unloaded, the corn being set up on either side of the "horse" so that it will stand nearly erect. The "horse" makes an open space through the center of the shock so that air can pass through freely, and cats and dogs can have access to every part of it. When a shock is finished it is

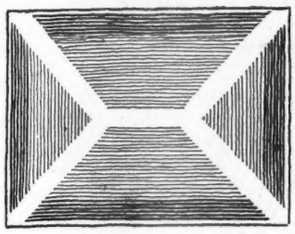


FIG. 1. SOIL PLOWED TOWARDS THE FENCE.

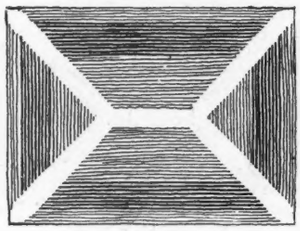


FIG. 2. BACK-FURROWING FROM THE FENCE.

bound around with binding twine, connected together at intervals of about four feet by cross-ties which are thrust through the shock by means of a pointed stick having a hole through its sharp end, similar to a sewing machine needle. Two men can securely tie one of these long shocks in three minutes. The fodder in these shocks cures and keeps much better than that in round shocks, while vermin never injure the grain to any appreciable extent. [A perspective view of this corn-horse is given on the opposite page in Fig. 1, and in Fig. 2 is seen a corn shock built upon it.]

METHODS OF PLOWING.

CHARLES E. BENTON, MASSACHUSETTS.

A plow is simply a wedge, which is forced between the furrow slice and the land, to separate the two. Like all wedges it is most efficient, when the force is applied most nearly in line with the direction of its work. To accomplish this, the clevis and the traces should be adjusted until the required depth is attained. Or if a wheel is used let that be placed at the proper height, adjust the clevis and let out the traces until the wheel runs on the ground all the way. A plow properly adjusted will run flat, and will not bevel

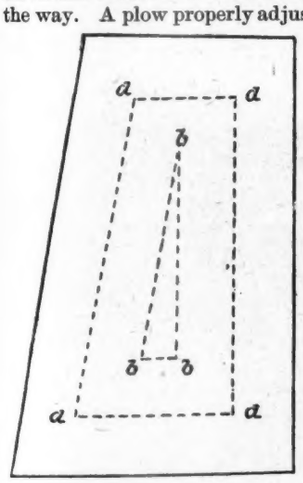


FIG. 3. DIAGRAM FOR PLOWING TOWARDS THE CENTER.

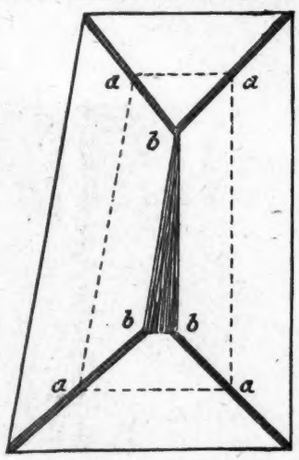


FIG. 4. FIELD PLOWED AND CORNERS BACK-FURROWED.

its point; while if it is adjusted with a high clevis and short traces it will bevel its point by continually running on its nose, and will jump itself out of the ground at every slight obstruction. The side adjustment is governed by the same principles, and there should be no undue pressure on the landside. Some soils will bear deep plowing, and are positively benefited by it, but others are injured.

The first consideration in plowing a field, is how to lay out the work. An old-time custom, still all too common and popular, because it requires only the minimum of brain labor, was to simply go around the field and forever and forever turn the furrows outward toward the fences. The results may be seen in many an old field in the accumulated depth of soil near the fences, while a gaping central dead furrow with its attenuated corner dead furrows reaching to the fences, is enough to make the cold chills run down the back of a tidy modern farmer. The effect of this kind of plowing is shown in Fig. 1, the shaded portions showing the accumulations of soil near the fences by the "round and round" system.

As a partial remedy for this evil, some have practiced a system of "back furrowing" away from the fences. The effects of this are shown in Fig. 2, where it is seen that, while it keeps the soil from accumulating near the fences, as under the other system, still the evils are only transferred to another part of the field, the center of the field being still denuded, while the soil continues to be piled in ridges. Even when the back furrows are laid out of unequal width, the unequal distribution of the soil is only a little more spread and less apparent.

To avoid all these inperfections, I plow my fields toward the center. Begin by providing a few dozen light stakes, and a twine a hundred feet in length. Now, with an assistant, measure the length of the string from the fence and set a few stakes, as shown by the outer dotted line *a* in Fig. 3. Beginning at these stakes measure inward again and set stakes as before, and repeat the process until you have reduced the field to a small center or core bounded in the figure by the inner dotted line *b*. Now begin to plow at the middle of this center piece, turning the furrows toward the center, and being careful to finish even to the stakes. Then back-furrow from each corner of this central piece, to the corresponding corner of the field, going out and back twice on each corner.

The field will then appear as shown in Fig. 4, and you can begin plowing all the way around the central piece, turning the furrows toward the center until the field is completed. The different sets of stakes will serve as guides by which the different sides of the piece will be kept even, and the whole will finish even to the fence. A labor-saving expedient, is to simply back-furrow the corners of the field, as shown in Fig. 4. If it is sod you are plowing, when you reach the back-furrowed corner of the field, without stopping the team you simply roll the plow over on the mouldboard, and while the team makes an easy turn, you guide the plow to its place and let it take its furrow on the other side without pause or hindrance. In fact the corner is turned in this way much easier and quicker than in the ordinary manner of going around the land.

DEVICE FOR TYING CORN.

CONVENIENT CORN TIE.

B. E. CHARLES.

As the season for cutting corn approaches, the provident farmer plans to have some suitable material at hand with which to tie the shocks. If one attempts to do this with the stalks themselves it will be poorly done, and loss will be entailed by shocks that fall apart in the storms. By many, rye straw is considered to be the best thing, but when its market value is considered it is somewhat expensive. For nearly twenty years past, I have used a device that has been growing in popularity until now it is very generally adopted by the farmers in New England. For this purpose I use tarred twine, known to the trade as "marlin," and the particular device to which I have referred is a fixture by which the marlin may be fastened and unfastened with ease, and thus be kept for use year after year. This is simply a little block of wood six inches long, one and one-fourth inches wide, and three-eighths of an inch in thickness, as shown above. There is a hole near one end into which the twine is tied, and near the other end a slot is sawed as shown. The twine, being drawn firmly about the corn, is wound twice around the block, each time in the slot. This is quickly done and makes it very secure, and it may be as quickly undone to take it off. At husking time, the same ties are used to bind the bundles of stalks, and in the winter, when the stalks are fed, they are saved to use again. I have used the same ties for many years; in fact, until the strings wore out, as the tar saved them from decay and from the tooth of the enterprising rat. The blocks are made of spruce at a country wagon shop where there is a water power, and I pay twenty-five cents a hundred for them, The marlin, which may be procured of dealers in cordage, costs fifteen cents a pound, and is cut into lengths of four feet. As one pound makes something over forty strings, it will be seen that, aside from the time spent tieing the marlin into the blocks, the ties cost but little more than half a cent apiece, and may be used many times.

MANAGEMENT OF FARM AUCTIONS.

E. R. FLINT.

Farm auctions are of frequent occurrence during certain seasons of the year. Regularly, every spring and fall, a large number of them are held in Michigan, and the persons who dispose of property in that way usually realize fully all it is worth, if not more. Strange as it may seem, men will often give as much for an old wornout tool at an auction, as a new one would cost. This, if not a good investment for the buyer, certainly is satisfactory to the seller, and oftentimes a farmer takes this way of disposing of a lot of half-worn farm implements and live stock he is anxious to sell, perhaps putting in some good articles to help sell the others. Occasionally at such an auction everything goes cheap, but not generally. The first thing to do after deciding upon such a sale is to engage an auctioneer who understands selling farm goods. A man, in order to get the most money out of the property offered for sale, must be well posted in the value of such things, or he will strike off the articles at too low a figure. He should also have a large personal acquaintance with the men in the vicinity so as to know who are reliable, and who are not. As all sums above five dollars are usually considered payable by note, if desired, this saves the annoyance of having irresponsible parties offer notes, as the auctioneer could, perhaps, hold for further bidding rather than let a thing go to such a man. After securing the auctioneer, who will have to be consulted as to a date for the sale, bills should be printed and widely circulated giving the date and describing the property.

Sale bills are most easily posted by first pasting them upon common untarred building paper cut into pieces the size of the bills after pasting. These can be tacked to trees and fences much more handily than if not pasted upon the building paper, and are not so easily blown down by the wind. One hundred and fifty to two hundred will be needed, and should be thoroughly distributed at least ten days in advance of the sale.

Refreshments of some kind are generally provided at noon for those who attend. The number of men who will be present varies, of course, but from seventy-five to one hundred may be expected, and an extra large sale often calls out twice as many. Especially should the day be fine, and the roads in good condition. The refreshments may be any thing which may be conveniently eaten from the fingers. Sandwiches, cheese, crackers, fried cakes, cookies or gingersnaps make a good lunch, or biscuits and butter may be substituted for the sandwiches, in which case dried beef, or meat of some kind should be added. Paper sacks, of suitable size, should be provided for the lunches, which should be put up early in the day, so as to avoid hurry at the last moment. For one hundred men there will be needed one hundred biscuits, ready buttered, or the same number of sandwiches, five pounds of cheese, and the same of dried beef, if that is used. Crackers may be added as needed. It is best to buy a barrel of them, and so be certain to have plenty. Everything should be of a nature that will not crush, and fried cakes and cookies are to be preferred to sponge cake. One of each is sufficient for each sack. A baker will furnish the entire lunch at a discount from his regular rates, and there is nothing gained in doing the baking at home. Five pounds of good coffee, if well steeped, should be plenty for one hundred men. Put it into cheese cloth bags, loosely, and steep in a new tin wash boiler, or large tin pails. Season the coffee to taste and let it be carried out in pails with the lunch. About fifteen gallons will be needed for one hundred men. Have several dozen of half pint tin cups for the men to drink from. These may be bought at twenty-five cents per dozen, and after they have served their purpose they may be sold in half dozen lots if it is not desirable to keep them any longer.

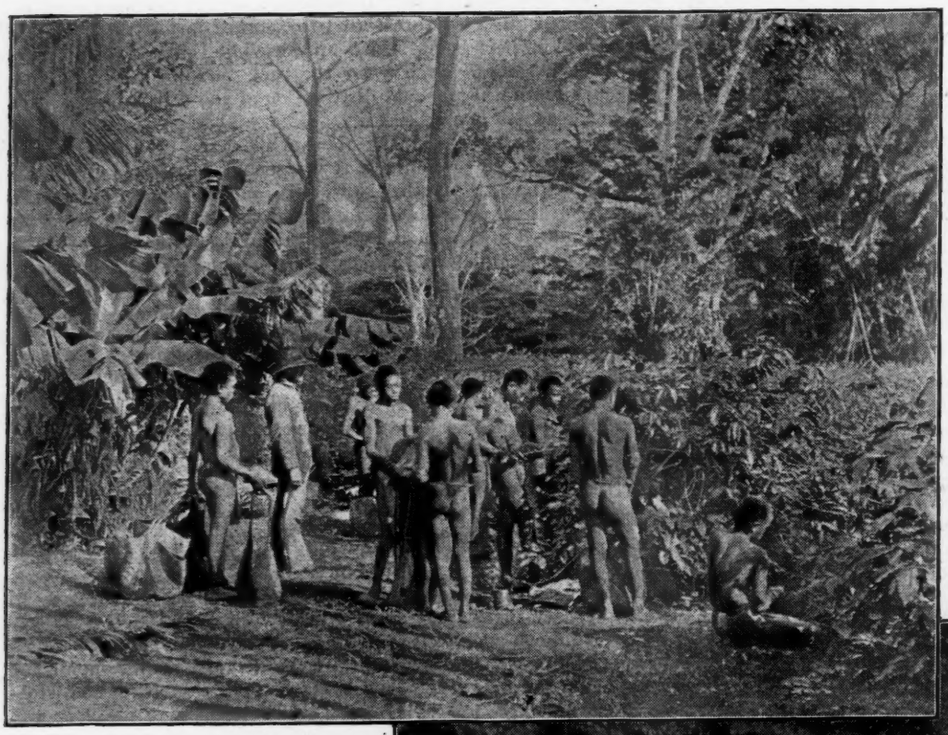


FIG. 1. GATHERING COFFEE.

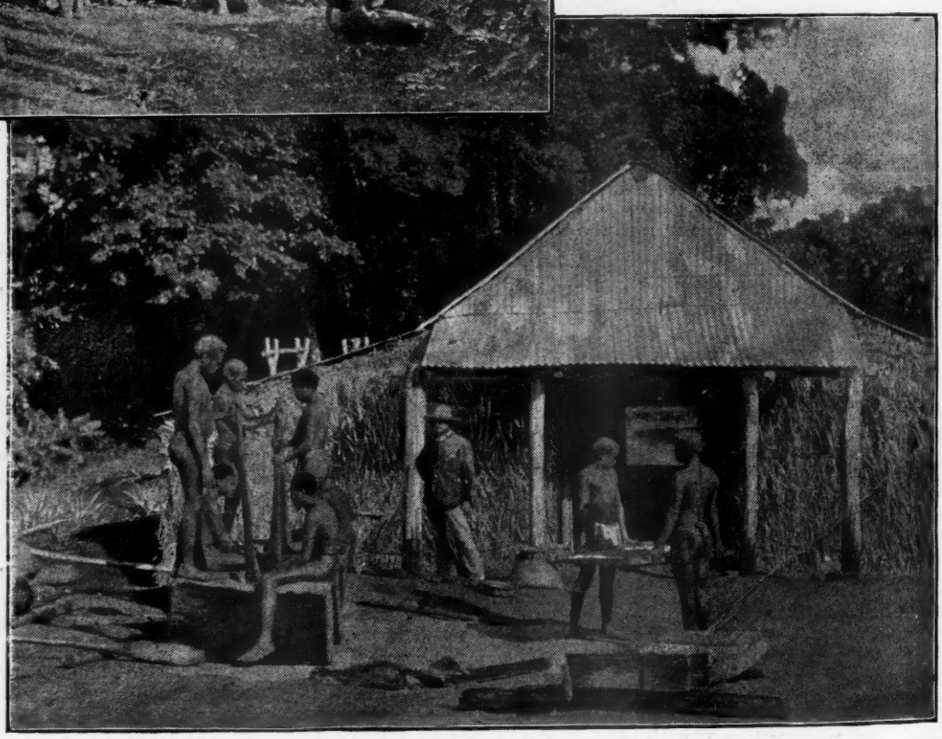


FIG. 2. HULLING COFFEE BERRIES ON EFATE ISLAND, NEW HEBRIDES.

The lunch is usually eaten out of doors, but a warm dinner may be prepared at the same time for the auctioneer and any intimate friends or intending purchasers from a distance. In providing such a lunch it is not best to be too economical in regard to quality or quantity. A well fed crowd means a satisfied crowd, one who will be much more likely to buy at good prices than if they were treated in a niggardly manner. They are, in one sense of the word, your guests, and it will be to your advantage to try to please them.

FROM CANNIBALS TO COFFEE GROWERS.

HERBERT STANLEY RENTON.

Twenty years ago the dark skinned people inhabiting the New Hebrides and the Solomon Islands in the South Pacific ocean, were cannibals, but the patient work of the Christian missionary has changed the fierce warriors to farmers, who sell dried cocoanut and tropical fruits, and work on cotton, sugar and coffee plantations. Once a month a little steamer plies around the New Hebrides, collecting the produce, which at Zila harbor, in the Island of Efaté, is transferred to the Australian vessels. On Efaté, which is the depot, possessing the principal harbors of the New Hebrides, coffee has been planted largely, and the yield is both rich and good. Instead of using bow, arrow, spear and club, as of old, many of the natives of this sun-kissed isle are seen hard at work gathering the fragrant coffee berry. The perfume of the white flowers is delicious. Under a tropic sun, the sight of its tough, green leaves is refreshing. The wild coffee tree sometimes grows twenty-five feet high, but when cultivated it is six to ten feet, and in Efaté, as in New Caledonia, Fiji and Hawaii, the quality is excellent, superior even to Java coffee. I have been in Java, and have drunk the pure article in Buitenzorg and Batavia, so that I know the flavor. Coffee was unknown to the Greeks and Romans, and good coffee is practically unknown to the English of Great Britain.

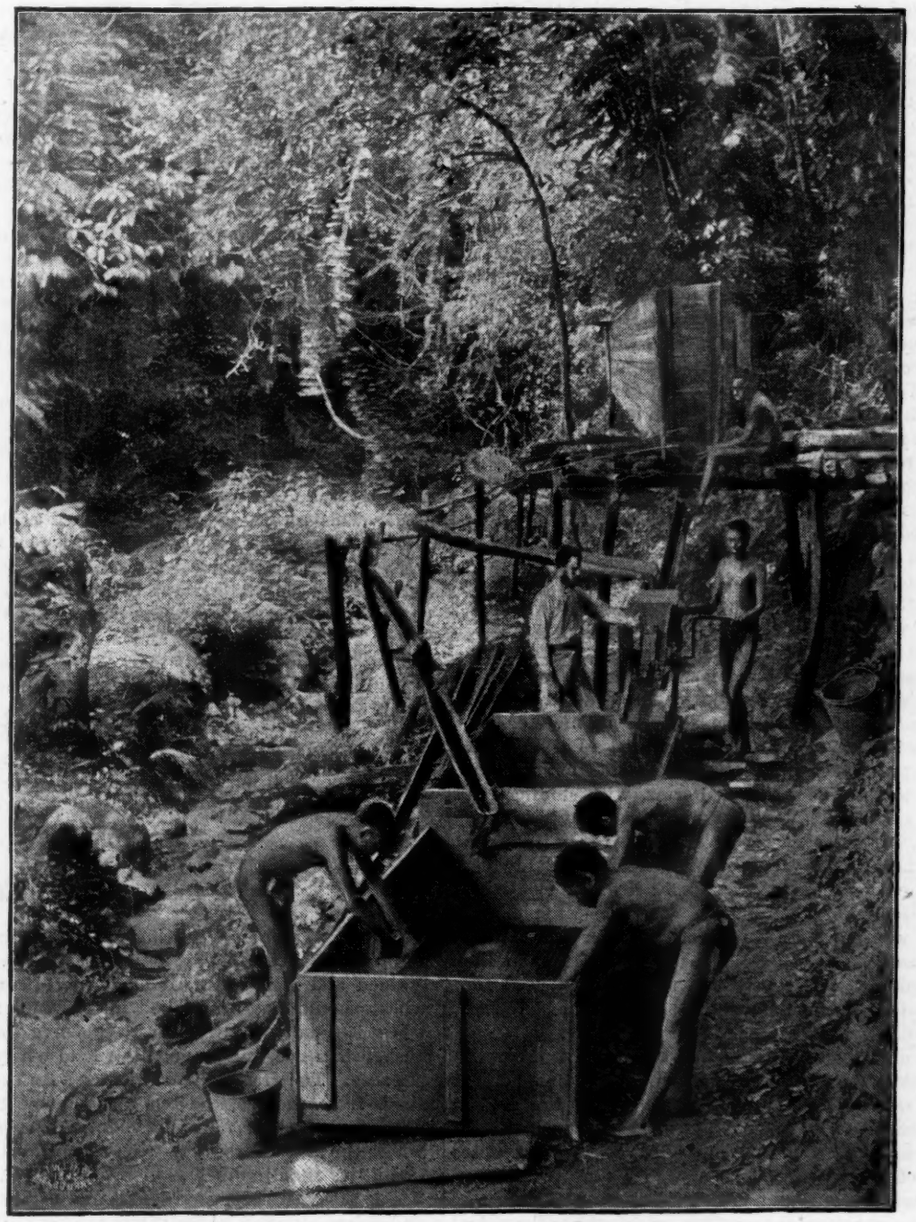


Fig. 3. NATIVES OF NEW HEBRIDES PULPING COFFEE.

In Efaté it may be duller work at a coffee pulper than clubbing enemies and roasting them for food, but it is more profitable, and clubbing coffee berries with a wooden pestle in a tree mortar is nobler work. The trade is small now, but promises to grow. Labor costs little, but the difficulties in the way are considerable. With the coffee bug and the blight, it is not all profit. Corrugated iron for sheds and houses is a great boon in a coffee growing country. All through northern Queensland and in the sweltering islands of the South Sea the traveller sees corrugated, galvanized iron houses and sheds. The light of civilization is spreading through these once unknown regions—from Aneityam, Fortuna and Sanna in the south to Aurora, Ambryne and Aoba in the north the change is wonderful since the days of Mendana, the Spaniard, who sailed here in 1595—and Abel Jansen Tasman, the Dutchman, who discovered New Zealand and Tasmania, and who sailed from Java to be wrecked in the New Hebrides in 1644.

The bad white man and the bread and cloth distributing missionary have contended for the possession of the myriad islands of the Pacific ocean for a hundred years. I have heard good men in Australia, New Zealand, Samoa and Hawaii speak disparagingly of the missionary; but, on the other hand, several captains of vessels in this very coolie-hunting trade, at the present day, have declared that the missionary has done and is doing a great work, and they "did not care to go inland, away from a mission station, on a cannibal island." The white traders are not all bad, by any means, and I have known many captains who were honorable in all their dealings with these New Hebrides and Solomon Island blacks. With such men the aim is not to kidnap the natives, but to get them to go to Queensland of their own free will, and with the free consent of their chiefs, to work for three years, at the expiration of which time, according to the law of Queensland, the captain must take them back to their native island. The atrocities of twenty years ago are not now permitted. The missionary and the planter are making great progress. It is essential to know these things to get any idea at all of the present agricultural features of these Cannibal Islands, on which the conditions of life and land are changing so rapidly as to astonish the beholder.

Capt. Cook dropped anchor in Zila harbor, and (Efaté) La Perouse was wrecked on Tanikoro, north of Sanna, and Deutrecasteax in searching for him found navigation so difficult among the coral reefs of these treacherous shores that he was afraid to approach Tanikore, where he would have found the wrecks of the Astrolabe and the Bousoule. It was near here, too, on the island of Santa Cruz, where eighteen years ago that sunny hearted, much loved man, Commodore Goodenough of the English navy, was mortally

wounded—being shot with arrows by the natives, who fatally wounded a number of his men, while he only permitted a return fire of blank cartridges, unlike the ordinary British officer. Some of the noblest men the world has seen have sacrificed their lives in the New Hebrides, and noble souls like Dr. Paton and his fellow laborers are now braving the heat and dangers of these lovely Isles, and side by side toil the planters who are developing the agricultural resources of the Cannibal Islands. [Our illustrations, engraved after photographs, show, on preceding pages, in Fig. 1, Gathering the Coffee Berry, Rathway, Efaté; Fig. 2, Pounding Coffee, Efaté; Fig. 3, The Pulper, Rathway Coffee Estate, Efaté.]

INFLUENCE OF TREE STOCK ON GRAFT.

H. REYNOLDS, M. D., MAINE.

Many seem to think it a matter of indifference what the stock is which is used for grafting, provided it be a thrifty tree. There are, however, other considerations worthy to be taken into account in regard to this matter. Every observant person must have noticed the great variety in quality of the same kind of apples as produced on different trees in the same orchard. Take Baldwins, for example. Some trees will produce very large, fair, highly-colored, finely-flavored specimens, while the fruit of other trees, near by, will be small, gnarly, crabbed fruit. One tree will produce green Baldwins with very little red upon them, while another tree will produce dark red, handsome fruit. The fruit from some trees will keep until late the following summer, while the same kind from other trees will decay early in the winter or fall. Why this marked difference in the same variety of fruit? Difference in the thriftiness of the trees will not explain it all. Difference in soil and culture fail to account for this diversity of results. Of course difference in soil and culture and thriftiness will explain a part of the variation in quality of the same kind of fruit, but does not satisfactorily account for it all. Influence of stock explains it.

There are good reasons for believing that a difference in the stocks used for grafting purposes will conclusively account for the diversity of products that cannot otherwise be explained. The quality of fruit produced by the stock will influence, to some extent, the quality of fruit produced by the scion engrafted on that stock. If the fruit of the stock is early and decays early, a late variety of apple grafted thereon will not keep as well as it would engrafted on a stock which itself produced a late keeping variety. An acid fruit grafted into a stock which produces sweet fruit will be less acid than it naturally is, or than it would be grafted into a stock which produces acid fruit. A yellow apple grafted upon a stock which produces red apples, will be likely to be more or less streaked or spotted with red. A gentleman grafted a Porter scion into an old tree that produced red sweet apples, somewhat spotted. The fruit produced was a mild, pleasant Porter, with shining red spots. Another man grafted Baldwin scions into a tree that bore early apples, and the product decayed early. Another tree in the same orchard which bore late keeping apples was grafted with Baldwins, and the fruit obtained kept well. In another instance Baldwins were grafted into a stock which produced a sweet, rusty apple, and the fruit produced was more rusty and of a milder flavor than Baldwins usually are. Many other instances of variation in the quality of fruit produced, apparently due to the stock used for grafting, might be adduced, but the examples given seem sufficient to indicate that there is a substantial basis for the theory.

Now the practical deduction to be drawn from this theory is evident. If the stocks used for grafting are or may be thus potent in influencing the quality of the fruit produced by the scions engrafted, then it becomes a matter of considerable importance to be careful in selecting stocks for grafting. The common practise is to use the seeds of cider apples, or almost any fruit for raising trees for grafting purposes without regard to the probable character of the fruit which the stocks would produce. Oftentimes the seeds of varieties which are not very hardy are used to raise trees for grafting hardy varieties into. No doubt the failure of many of these hardy trees to endure our winters may be due to the fact that the stocks are not hardy. The course to be pursued would seem to be to select seeds with care for raising nursery stock. Of course no one can be sure that the tree produced will yield fruit at all resembling the parent tree, yet it is probable that there will be more or less resemblance. The seeds of hardy, late keeping varieties would be more likely to produce trees which would be hardy and of late keeping quality than the seeds of early apples which were not hardy. The late apples will prove most profitable. Several years ago a Massachusetts orchardist planted a new nursery, hoping to produce some new varieties of value. He used the seeds of Baldwins. Before budding, he selected about a hundred of the most thrifty, broad-leaved promising trees to remain, and come to bearing in their natural state, the most of which were taken up and placed in another field for an orchard. They all came to bearing, but there was not a Baldwin, nor anything that resembled it, among them. All could be improved by being grafted to standard varieties. No doubt these trees proved superior for stocks to the common run of nursery stock, and the fruit produced by the grafts would be likely to be more uniform in size and keeping qualities. Any man who intends to set large numbers of apple trees will find it for his interest to plant a small nursery of his own to supply the trees raised after a few years, and can afford to take pains in selecting the seed to plant for his nursery.

RAISING POTATOES FROM SEED.

F. B. VAN ORMAN, IOWA.

To produce a strong, vigorous potato with good eating and keeping qualities, we must select for its parents varieties possessing these qualities; and by judicious crossing we may expect, to some extent, to fix in the new variety, some at least of the qualities we desire to produce. The seed balls should be gathered early in the fall, laid in the sun a few days, and then squeezed out into water. The seeds will soon rise to the top, when they have to be skinned off and placed on paper or cloth to dry. After drying thoroughly in the sun, or a warm, dry room for about forty-eight hours, the seeds are to be put in paper bags to keep until wanted.

Early in the spring they may be sown thinly in rows in a hot-bed, or later in the open ground. When two to three weeks old the seedlings have to be pricked out singly into carefully prepared hills, which should be about two feet apart in rows three feet apart. A small numbered stake has to be put in each hill, and during the growing season detailed notes should be taken concerning the habit, strength, time of ripening, yield and general appearance of each plant. This record must be continued each year for five years before one can definitely ascertain the real value of a variety, as many of those which appear promising at first run out entirely, and sometimes those which we were tempted to discard the first few years may prove our very best varieties. At digging time select only a few of the largest and best formed tubers of each kind, placing them into carefully marked boxes, each kind by itself, and in planting use only the largest specimens for seed. At the end of the fifth year, if good culture has been given, probably one or more varieties out of a hundred seedlings will be found that will pay for all the labor and care given them. Yet it should be borne in mind that little or nothing is gained in securing a new variety unless it is in some points better than in any of the old kinds.

WHEAT OR RYE.

S. BARRINGTON, NEW YORK.

Those who practice sowing rye should consider if there is not as much or more money in raising wheat. On properly underdrained and well fertilized land, there is no reason why winter wheat should not stand the winter equally as well as rye, and as wheat is usually worth from twenty-five to forty cents more per bushel than rye, and on good fair land will yield as many bushels per acre. The grain of wheat will sell for as much as the grain and straw from the rye, and one has the wheat straw to feed and put back upon the land. In the vicinity of paper mills or large cities where the straw is sold for various purposes, rye is raised in larger quantities than in other sections, but it is in the end a losing practice as the entire crop is taken from the field and from the farm, and unless commercial fertilizers are heavily used the land is positively deteriorating in value each year. It is supposed that every farmer is running his farm for the money there is in it and not for the sake of having something to do, hence the many who now raise rye almost exclusively, would without doubt be the gainer if they would sow half the intended amount of acres to wheat instead of rye, applying all the intended sowing of fertilizer to the wheat crop. One can do the plowing, harrowing, drilling, and gathering, in half the time, and should obtain quite as much from the wheat crop as for both the rye and rye straw on twice the amount of land. Besides one has the use of the extra five acres for pasture, or some other crop, presuming that the five acres be sown to wheat.

THE BEAN-WATERMELON ANTHRACNOSE.

DR. BYRON D. HALSTED, NEW JERSEY EXPERIMENT STATION.

One of the most conspicuous of all the fungus troubles to garden crops is the Bean Pod Spot, *Colletotrichum Lagenarium*, (Poss) E. S. Hals. This, upon some sorts of beans, is not only showy but very destructive as well. Certain varieties, as the Golden Wax, may have the greater part of the pods so badly spotted as to ruin the crop. This fungus enemy thrives seemingly as well upon the pods after as before they are removed from the vines, and therefore it is not unusual for the spots to develop after picking, and thereby cause much damage to the grocerymen and others who handle this crop. Experiments carried out at my laboratory show that thirty-six hours are sufficient to develop a good-sized spot from an inoculation of the virus upon a healthy bean pod. One of the most interesting facts brought out in the investigation was that the fungus can and does pass the winter in the beans themselves. During the growing season, it is not simply the pods that are affected, but the threads of the parasite penetrate the forming seeds. These beans as they mature may appear of nearly normal size and color, and yet have within them the germs of the pod-spot fungus. Many of the seeds may be so badly affected as to become noticeably inferior, and are consequently thrown away. It is the half-way injured seeds that are, therefore, the most objectionable at planting time, for with them the enemy is sown with the seed, the plants from which are to be affected. It was also shown that by soaking the beans in a fungicide, as the ammonia-carbonate of copper, the development of the anthracnose can be materially checked. Experimentation in the field may yet determine the best strength of the fungicide and the time of its application, for if the process is carried beyond a certain point, the life of the bean is enfeebled. There seems,

FIG. 1. BEANS WITH POD-SPOT.

however, to be a field here for future investigation, not only with the bean but many other kinds of seed, which, doubtless, carry the germs of the fungus. The results of soaking grains in hot water to remove smut spores, teach also the same lesson of the importance of sowing or planting seed that is as free as possible from these germs.

The particular point, however, to be brought out here by means of the three engravings, is the connection of this bean-pod spot with a decay not at all uncommon among watermelons. There seems to be a wide difference between the bean plant and the watermelon; but the fungus attacks in particular, the succulent outer tissue of the fruit in both cases, and while the pits or sori produced in the rind of the watermelon are naturally often much larger than those in the bean, there seems to be no microscopic difference in the common enemy. Fig. 1 shows three badly spotted beans. The engraving was made from a photograph, and while much of detail is necessarily lost in the picture, there is no exaggeration. The lowermost pod is the worst specimen, and is almost destroyed by the anthracnose fungus, while the middle pod is a plump one that bore seeds of market size. In Fig. 2, also from a photograph, is a nearly spherical watermelon a foot and a half in diameter, and therefore, all spots and specks are much reduced in the picture, it is seen that the rind is badly decayed. The specimen photographed was obtained from a market, and was considered entirely unsalable. Small melons, while they are still green, are often attacked, and the rind being then soft, the fruit is quickly ruined. As with the bean anthracnose, the fruit is not the only part of the plant attacked. The foliage of the watermelon is frequently badly blighted with the same fungus. To test the question of the identity of the anthracnose upon these two quite different hosts, inoculations were made from the bean to the watermelon, and the reverse, with success. A third fruit was next called into requisition, namely a citron, upon healthy specimens of which virus from both the bean and the watermelon was worked. A citron which had been thus treated is shown in Fig. 3. A line of ink was drawn

FIG. 2. RIND-ROT OF WATERMELON.

lengthwise of the citron and upon one side, at three points, the bean anthracnose was used while an equal number of spots upon the opposite side were inoculated with virus from the watermelon. All the places "took" about equally well, and spreading rapidly they all "grew together," with no differences manifest to the naked eye nor under the microscope.

The results of these studies of the anthracnose have a practical bearing upon crop growing. It is a common enemy to both, and must be guarded against accordingly. It is a fungus that produces a vast multitude of spores, their places of formation not being confined to the fruit. It is known to remain dormant in the seed of the bean and thrives upon the seedling beans, often ruining them. and thereby at the same time propagating a vast crop of spores. These may spread the disease to healthy plants, either bean or watermelon. Again the germs may be present in large numbers in the soil after a crop of beans, and be, therefore, unfitted for beans again. In the rotation the melon may come next, and this may

FIG. 3. CITRON INOCULATED FROM BOTH BEAN AND WATERMELON.

account for the distressing rind rot that is possible to follow such a step in the rotation.

The microscopic study of these fungus enemies of crops has, up to this time, continuously revealed new forms, and it is likely that further investigations may show the vital connection between dif-

ferent forms, or even their identity. While this may reduce the so-called species, it will add to the stock of knowledge concerning them, certain facts that may assist in the reduction of the ravages. Even now they are not half so mysterious as they were before their spores and filaments, winter and summer changes, and other conditions were known. The best fungicide, after all, is the keen eye of the trained observer, and the best application is by means of plain and simple words of fact to the minds of intelligent crop-growers.

PECAN CULTURE.

EDWIN MONTGOMERY, MISSISSIPPI.

Pecans may be planted at any time after the nuts ripen until the growth starts in the spring. Plant in rows three feet apart, four inches in drill, cover two inches deep, and keep the ground clean by good culture. The trees may begin to bear at eight years, but one can hardly expect full crops under fifteen years. The pecan is a long-lived tree. There are no data to guide one in estimating exactly the longevity of this tree, but it is safe to say that it bears for at least a human generation, and probably longer.

The pecan furnishes a good shade. Only the best quality of nuts should be planted. The rich, sweet oily nuts of the thin shell variety are the best to plant; they attain large size, being sometimes one and one-eighth inches in diameter and two and one-eighth inches in length. The yield from full-grown trees varies from one barrel of about 100 pounds to seven barrels. Upon the size and quality depends the market price, which is all the way from five cents to fifty cents per pound. In transplanting seedlings, experience has proven that about sixty per cent. bear true to seed planted. The bulk of the nuts on the market are from wild, self-sown seed.

Transplant soon after the leaves fall, and before the sap starts in the spring. As the pecan trees usually grow very large, they should be planted from fifty to seventy feet apart, being closer on poor land than on rich. The first two years the trees should have such cultivation as will keep down the grass and weeds, after that they will take care of themselves. The tree is not especially partial to any soil, but will thrive on all, if not too poor, and in both high and low land. This tree is subject to no disease, and to very few insect pests. The pecan is closely related to the hickory.

EXPERIMENTS IN THE POLLINATION OF PEAR FLOWERS.

JOSEPH F. JAMES, U. S. DEPARTMENT OF AGRICULTURE.

An important line of investigation, and one that will lead to valuable results, has been in progress for two years past by the Division of Vegetable Pathology of the Department of Agriculture. During the various investigations into the life history of the organism causing pear blight, Mr. M. B. Waite, special agent in charge of the work, ascertained that when insects were excluded from pear flowers that blight was prevented. It was thus manifest that the cause of the disease was some organism that was carried from one flower to another. It was, however, also observed that in the case of some varieties of pears, when insects were excluded the blossoms failed to set fruit.

This interesting discovery led to several series of experiments, one being carried on in an orchard on the James River, Virginia, and others at Brockport, Rochester and Geneva, New York. At the first of these points was an orchard of about 18,000 Bartlett pear trees, which had not been paying for years. Experiments made here were mainly confined to hand pollinations, that is, pollen was transferred from the stamens of one or the same flower, to another flower, the flower clusters being first enclosed in bags to prevent the access of insects. Pollen was taken from five different sources: (1) From the same flower; (2) from another flower of the same cluster; (3) from a different flower on the same branch; (4) from another tree of the same pomological variety; and (5) from another tree of a different variety. The result was that when Bartlett pollen, from whatever source,—different flower, same flower, different branch, different tree—was applied to Bartlett flowers, no fruit was produced. But when pollen from a different variety was placed upon the pistil of the Bartlett, fruit was fertilized, and grew well-formed.

Among varieties incapable of self-fertilization, there are, besides the Bartlett, the Anjou and Winter Nelis. These, when crossed with Bartlett pollen produced fruit; and the Bartlett fruited when crossed with their pollen. Varieties of apples show many of the same peculiarities, and Mr. Waite has tentatively given the following as the general result of his investigations: (1) The majority of the cultivated varieties of pears and apples require cross-fertilization in order to bring about successful fruitage. By cross-fertilization is meant the transfer of pollen from a different pomological variety and not from a different individual of the same variety. (2) Bees and other insects perform the work of cross-fertilizing. (3) The weather at the time of flowering has an important influence on the visits of bees and other insects, and through these upon the setting of the fruit.

The practical application of the facts obtained is, that "large, solid blocks of varieties known to be wholly or partially self-sterile should not be planted without introducing kinds known to be active fertilizers. Of course judgment must be exercised in the selection of pollinating varieties, otherwise there may be discrepancies in the time of blooming which will render them valueless so far as the object in view is concerned." Some varieties of pears are self-fertile, and these could be planted in blocks without other varieties. The proprietors of the Virginia orchard referred to above, state that if the trees can be brought up to their bearing capacity by the introduction of proper varieties, the value of the observations above outlined will be worth to them about $10,000 per annum.

SEPTEMBER FLOWERS.

EBEN E. REXFORD, WISCONSIN.

While the flowers of September are not as plentiful as those of earlier months, they, for the most part, make up in quality what they lack in quantity. It would seem as if nature, profiting by her season's experience, had made an effort toward perfection in some of the flowers she gives us at this season. The real reason, however, probably comes from the fact that cooler weather and less hot, dry winds prevail, and the plants take advantage of these conditions to put themselves in the best possible form.

In a little "journey about my garden," I have had reason to congratulate myself on the decided acquisition which the flower lover has in the single and semi-double dahlias. I do not wish to say anything disparaging about the old double varieties, but I must be frank enough to say that I consider these later kinds much better than the old. They bloom earlier, they are more graceful in habit, and quite as rich in color. For planting along fences which one cares to hide, for forming large, bold groups on the lawn or in the border, or as single specimen plants, I consider them quite equal to any plant we have. For cutting they are among the best of all the late summer flowers.

Then the hollyhocks! What grand masses of rich and delicate colors they give us, and what a stately effect they produce when planted where their stalks have a chance to display themselves against a good background. Evergreens afford a striking contrast, and bring out the vivid beauty of the great, double flowers, most effectually. These plants, too, are excellent for planting along fences, or in groups. No garden ought to be without hollyhocks.

It is rather late for gladiolus, but there will be a good many belated spikes of bloom showing in the beds where color ran riot a month ago, and these late flowers will be unusually large and perfect. It is an easy matter to have a fine show of these excellent flowers by making late and successive plantings. Bulbs can be kept out of the ground in good condition, up to the first of July, if kept cool and in a place neither very moist or dry.

Helianthus multiflorus var. plena is so exceedingly rich in color that it proves to be a valuable addition to the border where bright yellow flowers are few and far between. One clump of it is equal to a great burst of sunshine. When planted alongside of crimson and maroon dahlias, it brings out their rich, deep intensities of color with most brilliant and striking effect. What a pity it is not hardy enough to stand our Northern winters out of the cellar. I am greatly pleased with *Coreopsis lanceolata*. It has proved perfectly hardy with me for the past two seasons, one of which,—the last,—was exceptionally severe and trying. All through the summer the plants have been covered with rich, golden-yellow flowers, borne on such long, slender stems that they are of great value for cutting for flaring-mouthed vases, where they have a chance to fall apart naturally, instead of being huddled up in a compact mass. For front rows, in the border, this is an excellent flower.

The pansies are coming to the front again. About the middle of August I cut the old plants back almost to the roots. As soon as the dry, hot season begins to wane,—which is about that time with us,—the plants send up new growth, and from it we get very large flowers until cold weather comes, if the soil is enriched a little.

THE RHODODENDRON.

EDWIN C. POWELL, NEW YORK.

Among plants for cool house decoration and for evergreens out of doors, the rhododendron takes a prominent place. There are numerous species and many named varieties, but more that are unnamed. It seems a pity that such a handsome evergreen shrub like *Rhododendron maximum*, which is indigenous to the United States, should be so seldom seen in home grounds. It is really better known in England than here, and there it forms one of the main features of the undergrowth of lawns and pleasure grounds. The rhododendron is not perfectly hardy in the latitudes of New York and Boston, and requires some protection during the winter. On this account, and also because of its greater cost over many hardy, deciduous shrubs and evergreens, it has not been planted extensively except by people of wealth who wish to keep up fine grounds and who have a gardener to care for them. Because of the evergreen leaves of a glaucous hue, if for nothing more, the rhododendron should find a place on every lawn, for the sake of variety. Add to this its low growth and beautiful flowers, and we have a plant with few rivals. Still, amateurs with but a limited purse, cannot afford many plants, especially of the named and grafted sorts, but nurserymen are offering unnamed seedlings at a moderate price, and they are sure to give satisfaction when planted singly, or in groups. Upon the lawn rhododendrons should have a situation protected from the cold sweeping winds of winter. They like a light loam, manured annually with peat and leaf mold. The subsoil should be retentive, for they do not thrive well if kept dry. For greenhouse culture they must be kept in as small pots as possible and the root space restricted. Give a good, rich soil and good drainage. They are strictly a cool house plant, and will not do well in a warm atmosphere. A house as near forty degrees as possible suits them best, although they will withstand sixty degrees in the daytime, if the temperature does not fall too low at night. They should be left indoors the first two years, and may then be put outside during the summer after that. The growing season is from April to June, when they should have plenty of water. The plants should be removed to a cool pit or house, at the approach of cold weather, which should be kept just above the freezing point. For early flowering, the plants should be brought into moderate heat from December onward, but must not be kept too warm.

Rhododendrons are propagated in various ways. As mentioned, many are raised from seed. The seed pods should be allowed to mature, but must be picked before bursting, and placed in a warm place in the house. As soon as the pods burst, the seeds must be gathered and sowed thinly. Mix with twenty parts of fine sand and sow in pans, filled with equal parts of finely-sifted loam and decayed peat. Cover very thinly with a sifting of this and a little sand, and water with a fine hose. The seedlings should be pricked out into small pots when three or four leaves have formed, kept in the greenhouse a few weeks, and then moved out into pits. The seeds will keep coming up for several months. Cuttings of side shoots are often taken, and inarching and tapering are sometimes practiced. Stocks for grafting are raised from seed or cuttings, and grafted in the spring when one year old. The saddle graft is commonly employed, although the side graft and bud give good results. The cuttings should be of half-ripe wood, and should be stuck into compost in a close frame with moderate bottom heat. But little pruning is required, and when it is necessary, it should be done at a time when the part removed can be used for cuttings. Rhododendrons are easily trained to standards by removing all side shoots, allowing all the strength to go into the main stem and then heading it back at any desired height, when the lower buds will break. All not needed, and those below the upper third of the stem should be removed. Sometimes old plants which have become bare at the bottom are easily converted into standards by selecting the largest bare stem, cutting all the rest away, and pruning the head into shape. This stem may not be growing perpendicular, hence it may be necessary to reset the plant. The rhododendrons have very slender fibrous roots, which grow close to the surface of the soil, and sometimes above it. Hence they need shade, either foliage or mulch. [Our illustration represents a spray of *Rhododendron Veitchianum*, a beautiful plant with yellow and white flowers. Its distinct color and fine large flowers should make it desirable for more extensive cultivation than it is at present having.]

RHODODENDRON VEITCHIANUM.

Quantity of Water Needed by Plants.—It has been shown by the accurate experiments made by Sir J. B. Lawes, at Rothamstead, that the amount of water passing through a plant is an index to the product. Thus, in experiments with wheat, when 7,702 pounds of water were evaporated by the plants on a certain plot, the product was ten and one-half pounds of grain, but when the amount was only 1,616 pounds, the product was only six-tenths of a pound. This is reasonable, for as the food of a plant is taken up only in solution in water, the more water passing through it in the same kind of soil, the more growth the plant will make. This fact has a

most important bearing on the method of cultivation of such crops as may be so grown, corn and roots especially, and shows that the cultivation is not only for the purpose of destroying weeds, but is effective for the preservation of moisture in the soil, if there were not a weed growing. It moreover shows the ill effect of weeds on the growth of crops, for some weeds—the broad-leafed ones, especially,—rob the crops of water to an enormous extent. And the water being deficient, of course the food is not supplied to the plants.

STORING CROPS IN PROPER CONDITION.

J. M. STAHL, ILLINOIS.

The loss of fruits and vegetables in storage is of not infrequent occurrence. To lose one's supply of potatoes or apples is a serious matter. Sometimes the loss is due to storing in bad condition. Potatoes and apples, in fact every fruit or vegetable, should not be stored away while damp. Dampness favors rot. Fruits and vegetables are best stored in some dry, airy outbuilding until the imminent approach of freezing weather makes it neccessary to put them in the cellar. The building should have rather open sides, and there should be a free circulation of air under and around it. Seed corn should not be put away until it is thoroughly dried—to put it away damp is to give a cordial invitation to disaster.

If meat is put away in proper condition it will keep sweet; otherwise, it will decay, and it would make many a farmer feel poor to have his pork spoil. Meat most frequently spoils because it is put away before it has thoroughly cooled. One should remember that the interior cools last and that the middle of a piece will retain considerable heat after the surface has been cool for some time. Sometimes meat, butchered in very cold weather, is put away frozen so hard that it will not absorb salt. This may favor decay. Every year much hay, straw and fodder is lost because of storing it in bad condition. The great bulk of the straw stored in this country is put in stacks, and it will keep in good condition several months if the stacks are properly constructed. Much depends upon the top, and it is a good plan to repair the top and carefully readjust the keepers some weeks after the stack has been built. It will have become well settled by that time. The same attention should be given to hay stacks. Corn fodder left in the field during the winter is sure to be damaged seriously. The parts injured are just the ones that are most valuable. If it pays to cut corn, it will pay to store the fodder in such a way as to preserve it. If it is well set up and given a roof of boards and straw, it will keep in good condition.

Corn cribbed before it is fully mature will mold, and may rot. It does not pay to get in too great a hurry and store the corn before it is fit; and, on the other hand, unless one begins husking it at the earliest seasonable moment and pushes the work, his corn will pass beyond a fit condition for storing if he be in the great corn growing belt. Wheat or oats put in the bin in unfit condition will spoil unless attended to, and one should frequently run his hand deep down into the bin, for some weeks after threshing. If the grain starts to spoil, the only thing to do is to get it out on the barn floor and shovel it around every day until it dries and cools. In conclusion, to put everything in storage in good condition is a reform much needed on many farms, and it is to be noted that it is a reform that may be begun at any time.

TERRACING AT THE SOUTH.

O. W. BLACKNALL, NORTH CAROLINA.

The violence of Southern rain storms and the great damage to hilly land from washing has, from the beginning, rendered imperative, precautions to prevent, or at least lessen the evil. Hillside ditching has generally been the only preventive, but this has many drawbacks. This occupies much land, and gradually becomes a refuge for briars, bushes and all sorts of pestiferous weeds which hinder the plow and draw moisture and nourishment from the crops. Then unless the ditches were closely looked after, they are liable to become sand-filled, and the water after collecting in large volumes, to break over and convert the land below into gullies.

To prevent washing, a system of terracing has, with all our best farmers, taken the place of ditching. The plan is simple, and when done with a little judgment, is highly effective. The only implement necessary is an A-shaped frame to lay off the terraces. Light three-fourths by two-inch strips are best, but poles will do. The rule is to give it fourteen feet stride. When completed, stand the frame on a level floor or a plank leveled with a spirit-level. Drive a small nail in the apex. To this nail suspend, by means of a cord, any fragment of iron convenient to tie to, and say one pound in weight. When the oscillation ceases and the cord becomes stationary, raise one end of the frame post one and one-half inches, and work on the cross-piece exactly where the elevation throws the string. That will give a fall to the terrace of one and one-half inches in fourteen feet, which experience has shown to be right. Lay off with this frame a series of terraces through your fields. Go wherever the one and one-half fall carries one until a ditch is reached, or something to carry the water off freely, putting up small stakes to work the course. Three feet below or above the level of this terrace, one may have to go ten yards or a hundred in distance, according to the hilliness of land. Lay off others still following the one and one-half inch fall, until the field is terraced.

To throw up the terraces use a two-horse plow, and beginning at the line of stakes plow as heavy a bed to them as practicable by throwing the soil to them on each side and extending half way to the line of stakes on each side. In a word, the line of stakes will be on the crest of a bed whose water furrows will be half way to the lines of stakes above and below. This bed is the terrace. Along each line of stakes the same plan must be followed. If no two-horse plow is to be had, a one-horse plow can be made to answer by throwing up the bed twice. Every spring when the land is broken it should be done by a rethrowing up of the beds or terraces. In marking the crop rows, go right on over the terraces just as if they did not exist. Of course do not run rows up and down hill. Rather let them approach the water furrow of terraces as nearly level as possible. Very exact men let the rows approach this water furrow after running for ten feet on a level, and enter it up hill; that is in an opposite direction to the course of water running in the water furrow. But I do not think so much precision absolutely necessary. The water passes off slowly along these depressions or water furrows between the terraces by flowing over the crop rows. The result is that the water runs off so gradually that no harm is done, while not a foot of land is lost from cultivation.

HOMEMADE FERTILIZER.

B. W. JONES, VIRGINIA.

A fertile soil is one that contains, in a soluble and available form, all the needed elements of plant food. Of these, potash, phosphoric and sulphuric acids, silica, nitrogen and carbon are the soonest exhausted by cultivation, and therefore the most necessary to be supplied by artificial means. If the farmer will take good care to return adequate supplies of these in his soils, nature will, in almost every case, furnish an abundance of the others. The art of maintaining a soil fertile, lies in returning to it annually enough at least of humus, potash, and phosphoric acid to make up for the loss of these elements occasioned by cultivation and cropping. The farmer can do this much for his soils by several economic methods. Humus, or decaying and decayed organic matter, is most readily and cheaply supplied by growing upon the soil and turning under such green crops as clover and field peas. Every farmer knows the value of these. But it is not every one that utilizes them to the extent that he should. In place of the green crops, or as an adjunct thereto, let him also make liberal use of forest mold and litter. These should form the bulk of every compost heap, and the bedding for all his live stock.

Of potash and phosphoric acid, the best and richest home source is wood ashes. Only apply a moderate dressing of ashes about once every ten years, and any soil, other things being favorable, will remain fertile. Any farmer, if he will, can obtain, by home means, enough unleached ashes to top-dress at least one field annually, and so rotate around until finally all are thus treated. Wherever there are logs and dead timber, and turf, sods, and rubbish generally upon a farm, there are the materials for the ash supply. It is a fact not as well known as it should be, that burnt and smoke-impregnated soil, turf, peat, clay, or muck is, of itself, a valuable and lasting fertilizer. During the leisure spells, when the woods are not so dry as to render the escape of fire probable, the farmer should be burning the waste material of the farm, in order to increase the stock of ashes. After the logs and large timber are well on fire, let him throw on whatever turf, sods or leaves may be convenient to the pile, making the fires with that end in view. Of course this burnt dirt substitute for ashes is not as good a fertilizer as pure ashes, but mixed with ashes, it is a good and lasting manure, and it increases the bulk of ashes, enabling the farmer to get enough annually to top-dress at least one field. This form of ashes makes a capital top-dressing for clover, grass, small fruits, vineyards, orchards, and fields of grain on any soil needing potash.

GROWING SHALLOTS FOR MARKET.

HENRY MOONEY, LOUISIANA.

With Southern gardeners shallots are a very important crop, and in many cases the most profitable one grown. As they can be shipped at any time between December 1st and March 1st, it is also the earliest crop. The bulbs are put out in rows eighteen inches apart, and six or eight inches apart in the row. They may be planted any time between September 1st and December 1st, although the best season is probably in October. The ground should be rich as for all garden crops, well drained, and in perfect condition; I am not positive as to which kind of soil they grow best in, still, for my part, I should prefer a rich, sandy slope. They are cultivated with hand plows and cultivators, or wheel hoes, though, of course, there is some hand work required that can not be done

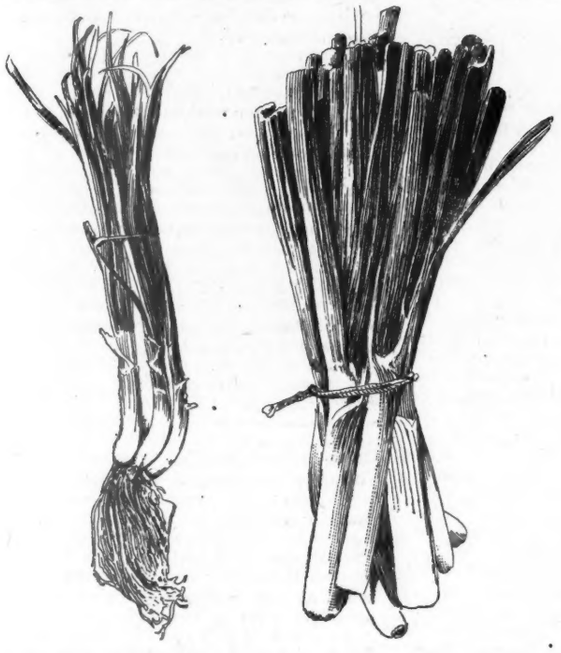


FIG. 1. SHALLOT PLANT. FIG. 2. BUNCH OF SHALLOTS.

by machinery. The white variety sells best and is equal, in every other respect, to the red. Good stable manure is the best fertilizer that can be used, though many who find it difficult to procure manure, use bone, bat guano, superphosphate of lime, and other fertilizers, with success. If stable manure is used, it is generally plowed in, the concentrated fertilizers are sown in the drill. After the bulbs have started they do not require a great deal of work, as they are rapid growers. In cultivating, the earth is gradually worked toward the rows, which causes the onions to bleach higher each time they are worked. This improves the quality, and consequently increases their market value.

Planting and preparing for market are the two great trials of shallot growing, but although there is a great deal of light work, there is nothing about the crop that requires hard work. I think it

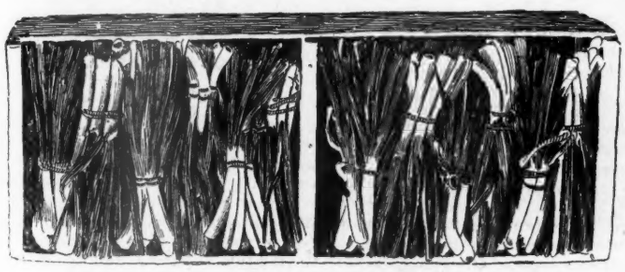


FIG. 3. SHALLOTS IN SHIPPING CRATE.

is best to plant the bulbs about two inches deep, but I know on this point there are differences of opinion. One gardener here merely opens the drills with a hand plow. He then sets out the bulbs six inches apart, puts in his fertilizer, and waits until they sprout. After they are three or four inches high he draws the earth around them; and he has had as fine shallots as I ever saw. To prepare shallots for market, pull them and shake off all the soil, cut off the roots, and slip off the outer skin. This leaves them perfectly white. They are then tied in bunches of seven or eight, or less if the bulbs are large, and laid in the box with the white end alternating from one side to the other. As the tops are generally too long, they are cut off until they just fit the box. Shallots are shipped in one-third bushel boxes, and they make a very attractive appearance, the white and green alternating regularly. Last year they brought an average of $1.25 per box, and some sold for $2.00. At this figure nothing pays better, and, as this seems to be the usual price, shallots are likely to remain for some time one of the best crops of the Southern market gardener. [Fig. 1 shows a shallot plant pulled out of the ground; Fig. 2 a bunch trimmed and tied; and in Fig. 3 is seen a box of shallots attractively packed for shipping a long distance and marketing.]

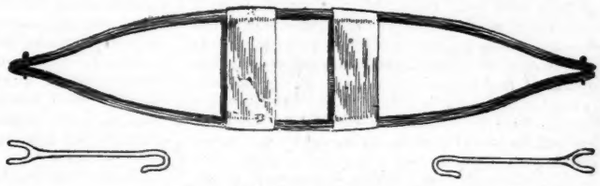
SECURE FRUIT LADDER.

FOOT HOLD FOR FRUIT LADDERS.

Each year, during the fruit gathering season, many serious and fatal accidents result from the ladders slipping or turning, when the picker is on them. All of this danger can be avoided at a slight expense, and the picker will not be in constant fear of a fall, and will gather fruit at a greater distance without changing the position of the ladder. The contrivance is shown in the above engraving from a sketch by L. D. Snook, and consists of two pointed straps of iron secured to the edge of each foot of the ladder, and projecting downward about three inches. When the ladder is in position, by simply raising it and letting it fall a few inches, the foot holds are pressed into the ground as far as the wooden portion. Many leave them on at all times, as on wooden floors they will hold more firmly than the wooden end. If attached with bolts or screws they are readily removed at the close of the fruit picking season.

YOKE FOR CARRYING HEAVY PAILS AND BASKETS.

In the region of the Vermont and New Hampshire sugar maple orchards, a convenient yoke is in use for carrying the heavy buckets of sap. Such a yoke is shown in the engraving, from a sketch by



CONVENIENT CARRYING YOKE.

W. Donnell, and may be found very convenient upon a farm for the carrying of heavy pails of milk, baskets of fruit or vegetables, or other burdens which otherwise would fall upon the unaided arms. Two-inch strips of ash or other pliant and tough wood are bent and secured by a bolt and nut at either end, these bolts securing also to the ends of two swinging rods of iron, three-eighths of an inch in diameter, with hooks at the ends, or a light chain, or even a rope with a hook at the end can be used instead of the iron rods. Across the yoke are stretched two bands of canvas, or webbing, four inches wide and secured to the wood. If stretched completely around the yoke, the latter can be used on one side as well as the other. These bands rest upon the shoulders and support the weight of the articles being carried. The yoke, when completed, should be about four feet long and very light, yet strongly made.

No Work, No Money.—No one can claim that there is a fortune in poultry raising, for there is not. Rightly managed large profits can be made, but do not for a moment suppose that these returns will roll in without hard, persistent work, with patience, and the founding of a reputation, which is always capital. Several Massachusetts poultrymen assert that they have made three or four thousand dollars per annum from a flock of fowls or ducks on a twenty-five-acre plat of ground. Let them tell how long it took and how hard they have worked to reach this point if they would do the beginner a kindness and soundly test his enthusiasm.

Kitchen Physic.

ALICE CHITTENDEN.

Every mother, more or less of whose time must necessarily be given to nursing, and every woman who makes nursing her vocation in life, should first of all make herself an adept in the art of cooking those dainty dishes, which when convalescence sets in have much to do with the patient's ultimate recovery. In the treatment of heavy colds, like la grippe, pneumonia, bronchitis, as well as many other diseases, there comes a time when plenty of nourishment, of a light kind, but still as supporting as the weakened digestion can endure, is much more necessary than the medicine. Beef tea, or chicken broth, however excellent, if it is allowed to become the staple article of diet, soon palls upon the delicate appetite; therefore, the wise nurse will vary each meal, and if she gives beef tea one day at eleven, will let some other form of nourishment take its place the next day at that hour, although the beef tea must perhaps, necessarily, be served later on.

As everyone who has ever had any serious illness has found out there is beef tea and beef tea, and the best resembles the worst as light does darkness. Some time ago during a severe illness I had a lady sent me as a nurse, whose very appearance seemed a sufficient recommendation. Her sweet serene face crowned with its wealth of beautiful grey hair was a joy to behold, she was as charming in character as in face, and all went merry as a marriage bell until I began to get better and to crave certain dainties which I felt I could make if I could only stand upon my feet. Then my dear old nurse disclosed her weak point. She could not cook a single delicacy, and I had to enjoy my Barmecide feasts as best I might, while I vainly tried to swallow the tasteless "slops" served up to me under various names.

To make a very palatable form of beef tea, cut a pound of lean beef into dice and put it with a pinch of salt and half a pint of cold water into a covered earthen jar, the jars in which some kinds of table salt are packed, with a saucer over the top will do, but it must fit tightly; or a glass preserving jar, if placed in a dish or pan of water may be used. Put this in the oven, and in an hour there will be a cupful of excellent beef tea. Serve it daintily in a pretty cup stood in a saucer, or in a dainty bowl on a fine china plate, and if the taste or health of the patient will allow, season with a pinch of celery salt and just a dash of cayenne. Thin wafers are suitable to accompany it.

Add another cup of water to the same meat and you will have a second brew which, although not so strong, is nourishing and may be so treated as to seem a different order of food. Rub a teaspoonful of flour very smooth with a little cold beef tea and then stir it into the rest which must be boiling; color, if necessary with a few drops of kitchen soup paste. Serve with finger-shaped pieces of toast.

Veal or chicken broth can be prepared exactly as the above. When it is more convenient to give any of the beef extracts they may often be thickened with flour, or a fresh egg beaten very light can be added very slowly to a cup of the hot liquid. Some kinds of prepared bouillon are especially appetizing and a very handy form of nourishment to keep in the house.

When more solid food can be taken, chicken panada is extremely savory. Cut the flesh from half a fowl into dice, sprinkle with a little salt, put it in a preserving jar, screw on the top, and simmer steadily in a saucepan half full of boiling water, for two hours. Then pound the flesh to a pulp with a porcelain potato masher, and a cake bowl will answer instead of a mortar and pestle; rub it through a sieve using some of the liquor that formed in the jar to pass it more quickly; stir a tablespoonful of cream into the basin of pulp, season and serve. Thin slices of buttered toast will go nicely with this. The leg of the other half of the same fowl may be served broiled, seasoned with pepper and salt, and lightly buttered. The breast and wing can be laid in a buttered baking dish with seasoning, a squeeze of lemon juice and a buttered paper laid over it and baked. Bread sauce and the rest of the liquor from the previous day's panada may be served with it. Sweetbread baked in the same manner is a treat that convalescing patients can partake of.

Delicate persons who are troubled with sleeplessness will be helped by taking, just before retiring, a half pint of thin oatmeal gruel made with half milk; the same amount of hot clam broth, or any other light, nourishing broth will often induce sleep. Milk and lime water is often useful.

Worse Than a Bag of Apples.

VIOLETTE HALL.

In popular rustic plays, and in much humorous fiction, provincial relatives bear down upon their metropolitan friends, sowing gawky manners, while the others reap embarrassment. This innocent folk invariably have a bag of red apples in tow which they guilelessly offer, with, perhaps, other farm produce, to their millionaire host, to the amusement of all who are more sophisticated.

There is another bag, not in itself so amusing, which no author has immortalized. It is a natty affair of russet alligator hide bound with sterling silver clasps. It luxuriates in the one "spare room" of many an unpretentious cottage, in all suburban towns, from the first of June until the middle of the following October.

Its owner is worn out with the winter's gayety and longs for the quiet of her old aunt's home. The aunt's daughters declare cheerily that they can provide no end of quiet. However, the two interpretations of the word are widely different. What the owner means by quiet is the daughters' idea of maddest dissipation: boating, driving, riding, lawn tennis, etc., etc. The little private bank account, laid by for next winter's finery, is wrecked to provide these trifling amusements.

One of the owner's many unpleasant foreign habits is that of lying in bed until eleven o'clock in the morning, thus driving the methodical family routine sadly awry. Another is, that the contents of the bag, which is, by the way, but the forerunner of a burly trunk, are strewn from attic to cellar through the usually immaculate home; caramel papers and news sheets, besmeared with fruit skins, fly about the breezy piazza; curling tongs bedeck the hall "hat-rack;" a bottle of ink and a tumbled box of note paper intrude into the sacred precincts of the darkened parlor and lie carelessly, in company with a disorderly pile of flashy novels, upon the sedate marble-topped center table. A boating wrap, driving gloves, and various tennis caps, perform further devastation. They fling themselves upon the astonished backs of prim horse-hair furniture that never in all its venerable life has been so desecrated before. And—but charity refuses to enter that old-time spotless bed chamber, where its contents and the bags seem to have been stirred up together by some great, riotous spoon.

Now comes a touch of tragedy. Not content with what despoiling it has already accomplished, the progressive bag attacks sacred home traditions. It sorts its own approved designs in art work, with which it came freighted, for its owner's piazza pastime. These, with an air of haughty self-approval, frown down the daughters' humbler artistic efforts. Now, for the first time, does the silver plate from little Willie's coffin seem other than a joy to look upon in its solemn walnut frame. The glory of the shell baskets and pagodas is too entirely dimmed. The bag emits one Kensington pattern after another in conventional design, while the owner oracularly declares that "high art does not seek to imitate Nature," but to suggest it. The daughters shudder, thinking of long hours spent in molding a certain case of wax fruit, that was indeed so like Nature that a small child had once attempted to eat some of it. The convincing marks of his teeth, in the side of a very yellow peach, had, up to this time, been hallowed. But now even the radiance is gone from the split-worsted callas.

After the last lingering remnant of honest family pride has been put to route, and every rural pastime has been squeezed dry, the owner of the bag snaps it together with an airy click, and straps her trunk, or, rather, the daughters strap it. She slips into her jaunty traveling suit that the others eye with envy, thinking of their winter suits gone in the thin air of enjoyment they have not enjoyed. She climbs into a hired carriage which the end of the poor little bank account has provided, to transfer her to the depot. Then it is that she calls back cheerily: "Good-bye. This rest has done me worlds of good. I'm so glad you haven't tried to entertain me."

Washing Blankets.

MRS. E. A. MATHEWS.

After being washed, woolen blankets seldom look the same. They turn yellow and lose that pure and dainty fluffiness that made them at first so beautiful. However, when soiled, they must be cleaned, so let us do the best we can for them. In the first place select a sunshiny day for the purpose, so that they may dry rapidly and without streaks. Prepare an abundance of hot suds, using the very best soap.

Right here is a diversity of opinion among experts. Some prefer warm water, others hot water, and others again, cold water. Take your choice, but remember one thing—do not change the temperature, for that is what thickens the blanket and makes it stiff and hard. If your first suds be of hot water, have the second of hot water, and rinse in hot water—and the same with warm or cold. Dissolve half a pound of borax in five gallons of water so hot that you can just bear your hand in it. Wash one blanket at a time, move it back and forth, rub the dirty spots, wash fast, and wring lightly. Then put it into another suds, hot, and with borax as before; wash in the same manner, and after wringing thoroughly, rinse in hot water, and again in clear hot water in which has been dropped a little indigo.

Now your blanket is ready for hanging up, and there is an art in this process. Stretch a strong clothes-line so that the blanket may catch all the sunshine possible, and also be well shaken by the wind; throw just enough of it over the line so that it may be pinned to the under side, and snap the wet blanket a few times, to get out wrinkles and make it dry straight. When almost dry, take it down and fold it for ironing. Be careful to fold it exactly true. Use heavy irons, not too hot, and go over it three or four times, but only on one side. All this work should be done rapidly, for the chief point in washing woolens is not to let them soak. Under the microscope we see the fibers of wool all little twists and curves, and soaking makes them expand or contract in an irregular way that changes the texture.

White woolen underwear must be washed very much as the blankets, always piece by piece, for if they are thrown by the quantity into the water, some must soak too long. Colored flannels must be carefully dusted, and every speck of lint or thread picked off. Grease spots should be first removed by deodorized benzine or gasoline; then wash in warm suds, in which a little ox gall has been dropped. This will prevent the colors from fading. A little ammonia helps to dissolve the dirt, and a little starch in the final rinsing will make them keep clean longer. It is unwise to ever wash blankets, or heavy flannel garments in very cold weather, as the drying is so uncertain, but if it is necessary the water should be much cooler than usual, so that the change in temperature will be less when hung out to dry. The result of winter washing is generally a thickened and hard, uncomfortable blanket.

Care of Mattresses.

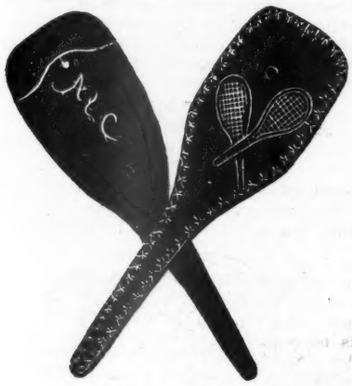
MRS. E. H. COOPER.

A bright, clean mattress is the housekeeper's delight. The question is how to keep it so. Some use slip covers of calico or muslin to protect it, but this is unsightly and unsatisfactory. Of course a tack of some sort may be used to guard the top from possible harm, but it is the rubbing against the slats or woven wire that so soon soils and darkens the ticking. I have found the following method free from all objections: Take a piece of sheeting or strong muslin, some six inches larger each way than the mattress. At each corner attach a twelve-inch piece of tape, sewing it by the middle so as to form strings six inches long. Lay this sheeting smoothly over the slats or springs. Straps, formed of pieces of mattress binding a little longer than the depth of the mattress, are sewed—by their ends only—to each corner of the mattress. Through these straps pass one of the strings at each corner, tying in a bow

knot. When desired, the knots may be untied and the mattress turned over. Before turning, remove with a small stiff brush, all dust from around the tackings, and the mattress will retain its fresh appearance for years.

Racket Case.

A pretty racket case is a nice gift for a young girl who is fond of lawn tennis. It should be made of dark cloth to harmonize or contrast prettily



COVER FOR RACKETS.

with her costume. Cut it exactly after the shape of the racket, allowing for seams, and inserting a strip as wide as the depth of the article. Use a French seam in setting in this piece, which will form a heavy and ornamental cording all around. Draw on the upper side a pair of rackets, and outline with yellow floss, for brown, blue or dark green cloth; work a row of fancy stitching about the edge and the initials on the other side. Button over the flap with a loop.

Table Centers.

The center for a dining table shown in our sketch is novel in shape as well as pretty in design. It should measure from 12 to 15 inches from

PRETTY CENTER PIECE.

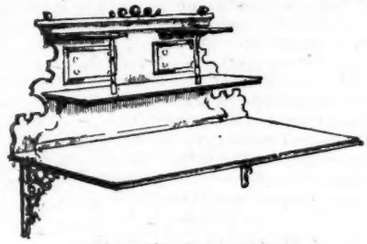
either extremity, and may be cut with the scallops less deeply indented if desired. Cream or pure white linen is the best material. Buttonhole stitch it around the edge, and inside of this, just allowing the worked edge to appear, sew a very scant frill of inch-wide ribbon; over this set a ruffle of lace. Work with a design of jonquils in yellow silk. Any preferred flower, such as violets, buttercups or sweet peas, may be used instead of jonquils, in which case ribbon and silk must correspond. The ribbon must be attached with as few stitches as possible, so that it may be removed when the piece is to be washed.

Portieres.

Unbleached cotton sheeting may be so treated as to make most artistic portières. Choose a firm web, deep cream in color. Cut it half a yard longer than the height of the door, and turn over this extra length at the top. Take a huge oak or maple leaf, lay it on stiff paper and draw around the edge; cut this out for a pattern and outline on the "fall-over" of the curtain a border of these leaves laid directly on the edge; over the body of the curtain scatter single leaves—not too many of them, with the stems all pointing like those on the border, slantingly upwards. With tapestry dyes, paint these leaves in flat tones of browns and yellows, not attempting to shade. When dry, buttonhole about the edge and vein with floss of the same shade as the body of the leaf. The border should be cut out along the buttonholed edge. The leaves through the body of the curtain are to be outlined with cable stitch. The cost of this is quite disproportionate to its simple beauty.

A Home-made Sideboard.

The advantages of a sideboard in a dining room consist more largely in the opportunity to place dessert and extra dishes, fruit, etc., conveniently within reach of the table when any of these articles are desired than in enclosed closets and drawers. An ordinary sideboard obtained in the furniture shops is beyond the purse of many who would greatly like the convenience of such an article of furniture, while an attempt to make a full-fledged sideboard in the home work-shop is a decidedly formidable undertaking. As the upper portion of a sideboard is, after all, the part most used, and the part that gives the most conveniences, it may be more advisable to attempt only such a portion as is shown in the accompanying illustration, which may be used as a suggestion, rather than as something to be exactly copied. The broad shelf may be of ash or oak, highly polished, or it may be of



STATIONARY SIDEBOARD.

white-wood dressed with a cherry stain and varnished. The whole top and back should be of the same wood. Bronze brackets support the two larger shelves, while the supports of the two upper and smaller shelves are plainly indicated in the cut. Beveled glass mirrors can be placed below these small shelves if desired. The lower brackets screw into the wall of the dining room.

Sealing Preserve Jars.

J. L. TOWNSHEND.

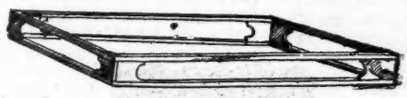
To seal earthenware preserve jars, or jelly glasses, so as to exclude the germs of mold, and the bacteria that produce ferment, the following plan has long been used with complete success: The jars and glasses are sterilized in boiling water. Have ready a paste of water and flour and clean white or manilla paper, which has been cut in round pieces an inch or two more in diameter than the top of the jar, so that the edges can be turned down. Dip a cloth into hot water and place it around the jar, or glass, which is then filled with the hot preserves, or jelly. Paste is then applied to the top rim of the vessel, and a piece of paper is smoothly pressed in position, after which apply paste all over this sheet, and fasten another sheet to it. To the second sheet another is fastened in

PRESERVE JARS SEALED WITH PAPER.

like manner, and to this a fourth one, carefully pressing the edges tightly together. The paper top, when dry, is as tight as a drum head. Sweet pickles, pickled onions and cucumbers, and spiced vinegar, may be preserved in the same manner. In jars, glasses and bottles sealed this way, the contents can be safely kept for a year, or more, without trouble from mold, or fermentation. The vessels, when put away, must be kept from rats and mice, or tin covers should be provided, as the vermin are attracted by the flour paste, and would soon destroy the paper covers, if unprotected.

Protecting Drying Apples.

Evaporated apples have made a large market for themselves, but popular as they may be, or may yet become, they will never be able to push entirely to the wall the old-fashioned dried apples of our grandmothers, for the latter, when dried in the sun every fall upon broad tables placed out of doors for this purpose, or upon a table of loose boards specially extemporized for this apple-drying period, possessed a flavor that no commercial

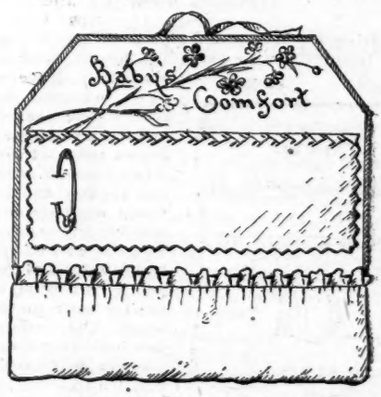


APPLE DRYING FRAME.

article possesses. But apples dried without protection in the open air, at a time when flies are most abundant, are not all that can be desired in the way of appetizing cleanliness. To secure the sprightly flavor of the old-fashioned dried apple, and at the same time secure a cleanly article, a cover, the frame of which is shown in the accompanying illustration, will be found very convenient. Such a frame can be made of inch-square strips of pine, the frame being made a little smaller than the table to be used, and the top and sides covered neatly and tightly with mosquito netting, either wire or cotton, which will permit the sunshine to reach the apples, and the air to circulate above and through them, while keeping out insects, flying dirt, leaves, etc. Such a cover is much to be preferred to the custom of covering the slices, or quarters, with loose strips of cotton netting, which, resting closely upon the fruit, do not wholly keep off flies and other insects, and greatly hinder a free circulation of air both above and through the apples.

Baby's Comfort.

The little article here illustrated is quite as much for the comfort of baby's mamma as it is for that of baby, for every mother knows how persistently



SERVICEABLE GIFT FOR A BABY.

safety pins hide themselves when wanted. Take a piece of China silk ten by ten and double it, sewing in a scented interlining of crinoline. Feather stitch on a pinked leaf of flannel for holding single pins, and full across the bottom a pocket for holding papers of pins and various little toilet articles. Roll up and tie, and keep in the baby basket.

Bed Spreads.

Some very pretty spreads are made of white honeycomb darning cloth, stamped with a pattern like that on the wall paper, and etched with rope linen in colors to match. Another spread suitable for a country house in summer was made from the bright gingham turbans, such as the colored women of the South wear, and an old linen sheet of homespun. These handkerchiefs are a yard square. A whole one, in shades of dull pinks, greens and yellows, was placed in the center diamond wise; half ones were basted in the corners

and quarters between. They were all then feather-stitched with fine linen floss of the prevailing shade. These handkerchiefs never fade, even with the terrific bleachings which they receive under a tropical sun. Squares and triangles of pale blue or other colored linen, laid on unbleached sheeting or Bagarren cloth, may be used in like manner, and will make handsome and durable spreads.

Denim Laundry Bag.

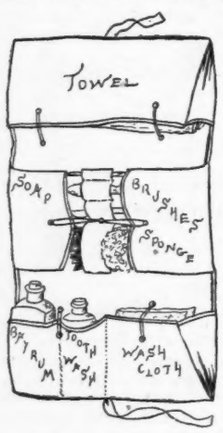
A novelty in decorative materials is red denim. It is very effective for many purposes and most desirable for bags of various kinds, as it seldom requires washing. Draw across the bottom of the bag a design of partial circles, using a saucer for a pattern. Work them with heavy white cotton in

RED DENIM CLOTHES BAG.

feather stitch. Run in a shirr string, and if further decoration is desired, ornament with unequal lengths of heavy white cord terminating in tassels.

Traveling Case.

Tourists to the World's Fair will do well to provide themselves with a case like the one shown in our sketch. It measures eleven by twenty-one inches, and is made of heavy brown linen, lined with oil silk. The end pockets are the width of the case and five inches deep, with a gore five inches deep and two and a half wide at the top sewn in the sides. The articles are held in these pockets by elastics and buttons, as shown. Through the middle stitch a band one and a half inches wide and five and a half long; divide this into four parts for small articles. The brush and sponge pocket is five and one-half inches long and four deep; the soap pocket is the same length, and only three inches deep. These latter pockets are lined with oil silk, and bound top and bottom with brown braid. When closed, it will make a three-fold package, and will fit snugly in the bottom of a satchel.



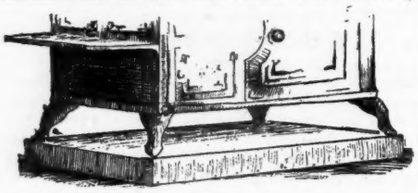
HOMEMADE TRAVELING CASE.

Baby Crawlers.

Take a piece of heavy unbleached sheeting two yards square and line it with a piece of old carpet, thick cloth, or comfortable. Before lining it, cut funny figures out of turkey red; dogs, fishes, pussies, babies, stars, etc., and stitch them on the sheeting with the machine. Bind the edges with turkey red, and see if baby does not amuse herself for many an hour on her "crawler," which you can make in a single evening.

A Back-Saving Devise.

Probably ninety-five cook-stoves out of every hundred are so low that those who cook by



A STOVE PLATFORM.

them have to be continually stooping, not simply when using the oven, or putting in wood, but even when using the top of the stove. Sweeping under such stoves, where dust seems especially to gather, is a difficult and back-aching matter. Stoves are sometimes elevated upon blocks, but this does not usually give them sufficient height, nor does it keep dust from collecting beneath them. The device that is shown in the accompanying illustration helps in both directions, for it provides an elevation of five or six inches, or as much as is needed to give the stove a convenient elevation, and very largely obviates the collecting of dust below the stove. A raised platform of wood is provided, with sides and ends of board, as well as the top, and the whole covered neatly with zinc, the platform thus provided being made two inches longer and two inches wider than the rectangle covered by the four legs of the stove. After using such an arrangement the housewife will soon wonder how she ever managed to get along without it.

A Pretty Homemade Hat.

F. P. SCRIBBLER.

A sketch of a quaint and becoming little hat, Fig. 1, with a diagram of the brim, Fig. 2, is herewith given. From the pieces of a pretty summer dress, of silk, chambrey, lawn, or other similar material, a charming little hat to match may often be made by the home milliner at a very small cost.

FIG. 1. GIRL'S HAT.

Measure a broad, easy-fitting old hat for the size of the brim, and the size and shape of the crown opening; then cut the foundation from canvas, according to the measures and the diagram, and cover it smoothly with the silk or chambrey. The soft crown is made of a circular piece of the goods, almost as wide as the hat, which is gathered around the edge and seamed to the crown opening on the wrong side, with rather more fulness in front than at the back. Inside is fitted a crown lining made of a small round top of the canvas surrounded by a slightly gathered narrow band of any soft lining silk or cambric; this preserves the shape and forms a support for the lace and ribbon decoration, which is tacked to it on the flat top—after the fullness has been pulled and tacked in the most becoming folds.

FIG. 2. DIAGRAM OF HAT.

Sometimes the center of the crown is embroidered with a pretty wheel or star design in white, sometimes dots or small, single white flowers are scattered all over the crown, and often the brim is of plain goods while the crown is of figured. For a shade or play hat such decoration is preferable to the ribbon and lace.

Lavender Pillows.

The owner of an old-time garden, well filled in some corner with sweet lavender, can hope to rival her city cousin in the latest fad, which is to fill any number of pillows with lavender for the parlor couch. These delightful head rests are really particularly soothing to the nerves, besides possessing a perfume witchery all their own. Variety is given in the shape and covering, and no embroidery is necessary for these subtle scented creations of a summer. The square pillow, which is always popular, needs only a covering of pretty silkoline, with a double frill of the same over its inner layer of cheese cloth. There is generally a smaller one, oval in shape, and likewise flounced about the edge; then there is a bag-like affair caught about the top just like a grain bag, only with shining folds of ribbon instead of twine. A small, square pillow is tied about with ribbon, with the bow on top, exactly like a package of tea. It is a pleasant idea, this of filling the house with this dear old perfume of our grandmothers.

A Nainsook Cloak and Cap.

CONSTANCE WHITE.

The cloak shown in Fig. 1 and the cap in Fig. 2 form a dainty costume for a little girl three years old. They are not serviceable or practical for

FIG. 1. CHILD'S HANDSOME CLOAK.

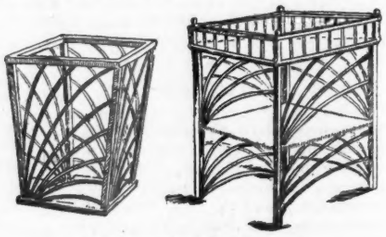
ordinary wear, but for a summer wedding, or any dressy entertainment, nothing could be more suggestive of juvenile elegance. The material used is sheer nainsook, the tight fitting waist of the cloak being of a double thickness, and the full skirt joined to it with a covered cord and finished at the bottom with a hem six inches in width. The narrow collar or cape is made of very fine needlework and edged with an embroidered ruffle eight inches deep. The cuffs are also of embroidery, edged with a narrow ruffle, and the puffed upper-sleeve is of nainsook over a tight lining of the same. When worn over a low-necked dress of thin mull the effect is charming.

FIG. 2. NAINSOOK CAP.

The cap is made of the same material, as may be seen by the illustration, the straight band over the head being of embroidery edged with a full ruffle and the puffed crown of plain nainsook. If desired, they may be made over colored silk linings, but plain white seems by far the most fairy-like.

Two Reed Baskets.

The two engravings herewith, illustrating a



TWO PRETTY BASKETS.

waste paper basket and a work basket, are given more as suggestions of the ways to use such reeds as are employed in the manufacture of a certain

grade of baby carriages, or the pliant twigs of willow and other woods that grow everywhere, than as a set pattern to be followed in the construction of these articles. A framework of wood being provided, the maker can use his own ingenuity, invention and taste, if desired, in adding the reeds or twigs, which can be fashioned into very attractive designs.

Styles for the Gay and the Grave.

"The Fall is the time for tennis!" remarked a young player to me the other day, and September sees the fresh, new gowns prepared for this fascinating sport, dotting the greensward given over to the merry racket and ball. Never were costumes more gay and jaunty than at present; pure white and brilliant scarlet serges dividing favor with the ever popular suits of blue, while the mode of making is as stylish as it is simple. The skirts are sensibly short, clearing the ground for two inches, and are not more than four yards around, although they are sharply flared by seven gores, while eight or ten rows of stitching afford a neat finish. These are lined with taffeta silk or with percaline, a soft cotton fabric that has suddenly sprung into vogue for foundations. The bodice is what is known as a belted coat, and consists of a round waist without gathers, the fronts being turned back in revers, from beneath which appears a box-pleated collarette, extending over the shoulders and the top of the mutton-leg sleeves. Around the bottom of this waist is sewed a basque skirt more than half a yard deep that is cut in a half-circular shaped piece, lined with silk and attached with most of the fulness in the back. A belt of ribbon, galloon, or of the dress material hides the seam about the waist, and a high-collared plastron of some contrasting hue is worn inside the front; while the skilled needlewoman will be sure to embroider a pair of crossed rackets, in colors, on the sleeve or revers of her pretty tennis frock.

Another fashion suitable alike for the athletic field and the street, is a serge skirt and a corsage of another goods, usually one of the changeable or fancy silks. These differ from the regulation shirt waists, however, in being made over a fitted lining, with a full frill down the front, a smooth back without seams, large balloon sleeves, a high stock collar, and a rather narrow girdle. The chic little coat-skirt spoken of above will not be confined to the so-called outing dresses, but will be a decided style of the Autumn, appearing on rich gowns of wool, silk and satin. It may be of any becoming depth, and is cut in half or three-fourths of a circle but never a complete round. It is applied without gathers and stands out in natural folds. Indeed all the indications are that the very short, round waists are on the wane, and for all tailor costumes there is a return to small basques.

Those in first mourning have their handsome Henrietta cloths and crépons trimmed with a circular basque skirt and circular collarette of English crape, the belt, stock-collar and lower part of the sleeves being of the same. Later, lustreless silk is employed in a similar manner, or in flat decorations, as bands, milliners' folds and revers.

It must be acknowledged, however, that a decided revolution has taken place in mourning fashions. Crape is much less used than formerly, many rejecting it altogether, except, perhaps, for the best veil, and a widow now rarely wears the "cap" or white ruche inside her bonnet. She is merely characterized by the severe plainness of her attire, though a distinctive mark is a collar and cuffs of sheer, transparent organdy, three or four inches deep, and finished by a wide hem. Young people wearing black follow the simplest styles for colored dresses, and, after the first mourning is laid aside, add a little white to gowns of silk, crépon and clairette, in the way of guipure insertions applied in rows on the waist, collar, belt and sleeves. Glittering jet, also, is much used for brightening too sombre frocks. With these are worn small round hats of black chip or rice-straw, trimmed with a broad bow of gauze or crape, or else little rosettes of the same, with jet ornaments and a high aigrette.

It seems a great and abrupt transition from sable and crape to the rainbow-hued silks and satins, for the Columbian Exposition has incited manufacturers to outdo all previous efforts, and the exhibit at Chicago shows the most exquisite weaves and patterns, as well as daring color combinations, that make the conservative woman open her eyes in astonishment; while it would take veritable daughters of Anak to wear some of the mammoth designs. But, again, we have the superb, double-faced satin of the "stand-alone" quality, of which our grandmothers loved to prate, and oh! such lovely floral devices, wrought with equal distinctness on both sides. Then there are the Hernanis that one would believe to be embroidered, so skillfully are the metal threads and beads woven into the brocade; while only fit for royalty appears the lustrous white silk bordered by realistic corn-flowers of *himmel* blue, red poppies and ears of golden wheat. This last is double fold, the width making the length of the skirt. Truly, the approaching season promises to be one of unusual gorgeousness.

The practical reader, however, will be more interested in the natty little coats to be slipped over various gowns on the first cool days or evenings. Like the tennis frocks these are of one of the national colors, red, white or blue serge being generally used, but are set off by a butterfly collar of black moiré. The front resembles that of the familiar, double-breasted reefer, and is adorned with two rows of large pearl buttons. The half-long back fits snugly to the waist-line, but there widens out in three stylish, flaring pleats, headed by black rosettes. The sleeves are huge, and are tucked or corded diagonally. Akin to these is the Dalzie or circular cape, consisting of two flaring capes and a collar cut out of wide cloth without seams. A pretty one is of tan color overlaid with rows of brown braid, applied about an inch apart over the entire garment.

September in the Kitchen.

Appetites begin to brace up in the latter part of this month but new and delicious dishes are none the less acceptacle. The always welcome oyster has come to town along with the "R" in September and its admirers have welcomed it in stew, broil and fry, and in many other ways. Perhaps none of our readers have ever eaten a stew made as follows: Use large, solid-fleshed, fresh oysters, as they do not toughen and shrink as the salt oysters do; strain two dozen from their liquor into a bowl with a teaspoonful of lemon juice. Meantime simmer the liquor with a tiny blade of mace, four pepper corns, a pinch of cayenne, a dash of grated nutmeg and a bit of the thin yellow rind of a lemon; in another saucepan melt a tablespoonful of butter and rub through it a tablespoonful of flour; add the strained liquor and a gill of hot cream or rich milk. Lay in the oysters and as soon as they are hot through and their beards just begin to curl, pour over thin slices of toast, one for each person. This is enough for four persons if it is a supper dish, or for six if used as an intermediate course at dinner. A delightful addition to this unique stew is to peel a large cucumber and boil ten minutes in salted water; cut in very thin slices, season each lightly and drop in the stew five minutes before serving.

Ginger Cream. Ladies who are fond of pleasing and astonishing their friends with their culinary skill will appreciate this recipe. Cut three ounces of preserved ginger in thin bits and put in a bowl with three tablespoonfuls of the syrup; the well beaten yolks of four eggs and a pint of cream; pour in the upper receptacle of a farina kettle; cook slowly for ten minutes, remove from the fire and beat with a wire egg beated until nearly cold. Soak one ounce of gelatine in a little cold water and pour over it a half pint of boiling water; add two teaspoonfuls of powdered sugar and stir until dissolved; strain into the mixture in the kettle, beat well and put in a mold which must be set on ice. Serve very cold with whipped cream.

Tapioca Cream. This is a very wholesome and excellent dessert, especially where there is a family of children. Soak a cup of tapioca in a pint of milk or water over night; the next morning put it in a double boiler with a quart of rich milk; cook half an hour, add the yolks of three eggs and a scant cup of sugar, flavoring with nutmeg or lemon peel. Stir constantly after adding the eggs, to prevent curdling; cook three minutes, add the whites whipped stiff and pour into a glass dish. Serve cold, dotted wth bits of jelly. It may be eaten from small glasses and is very pretty as well as good.

Rice With Pears. Boil a dozen pears in syrup as for preserves; when tender, lift them out carefully and reduce the syrup almost to jelly. Cook one cup of rice in milk with a dash of nutmeg, a tablespoonful of butter and an ounce of sugar. When done, add two beaten egg yolks, arrange in a border on a dish, fill the center with whipped cream, and lay the pears about the base pouring the syrup over all. The rice must be cold before putting in the whipped cream.

Pear Fritters. Cook some pears tender in syrup; drain and cool, cut in quarters, dip in fritter batter, fry brown in hot fat and serve with powdered sugar or sweet sauce.

Cucumbers Stuffed. The large, ripe cucumbers need not go to waste. They make most delicious dishes if rightly cooked. Peel two or more, cut a slit in one side and scoop out the seeds with a small spoon, fill with any kind of bread or meat stuffing and tie shut. Line a saucepan with slices of thin bacon and beef, lay on the cucumbers, cover with more meat and bacon and then with stock or water and simmer an hour or until all are tender. If water is used add too young carrots, one turnip, an onion and soup herbs.

Cucumber Soup. Slice three cucumbers after peeling; sprinkle with salt and put between two plates for an hour; drain off the juice and put them over the fire with two quarts of white stock; simmer 40 minutes, season with salt and cayenne, thicken slightly with fine flour, add a pint of milk and the yolks of two eggs well beaten. Milk may be used instead of stock, adding an ounce of butter, to make it richer.

Uses of Old Newspapers in the Kitchen.

If all clean papers and pasteboard boxes were cut in convenient shape, with a hole near one end, through which to hang them on a large hook near the kitchen table, and used to stand hot kettles, frying pans and other utensils on, the table would be kept white and clean without any tedious scourings.

If a newspaper is spread on the back of the kitchen range and stove shelf, before the dishes are placed thereon to warm, they will not soil the table linen.

If kerosene lamps must be cleaned on a kitchen table, spread a newspaper down before commencing the operation.

Avoid soiling the kitchen floor when you remove the ash pan from the range, by laying a newspaper on the floor under the stove door.

For Dried Grasses.

If one's walls are hung with tasteful paper and beautiful pictures other decorations are not needed, but all of us cannot so adorn our homes. If the house is new and the walls unpapered, many little inexpensive furnishings are permitted that would otherwise be out of place. Gather a bouquet of dried grasses and such trophies from woods and fields as you can find, bright berries of the bitter-sweet and the wild clematis vine with its silk-like pods and graceful tendrils. When you have gathered enough to fill it, take a palm leaf fan, bend it together in the middle, catch it with a stitch or two and use it as a receptacle for your bouquet. Hang it over some unsightly spot on the wall, or in some bare corner.

Economy in Good Brushes.

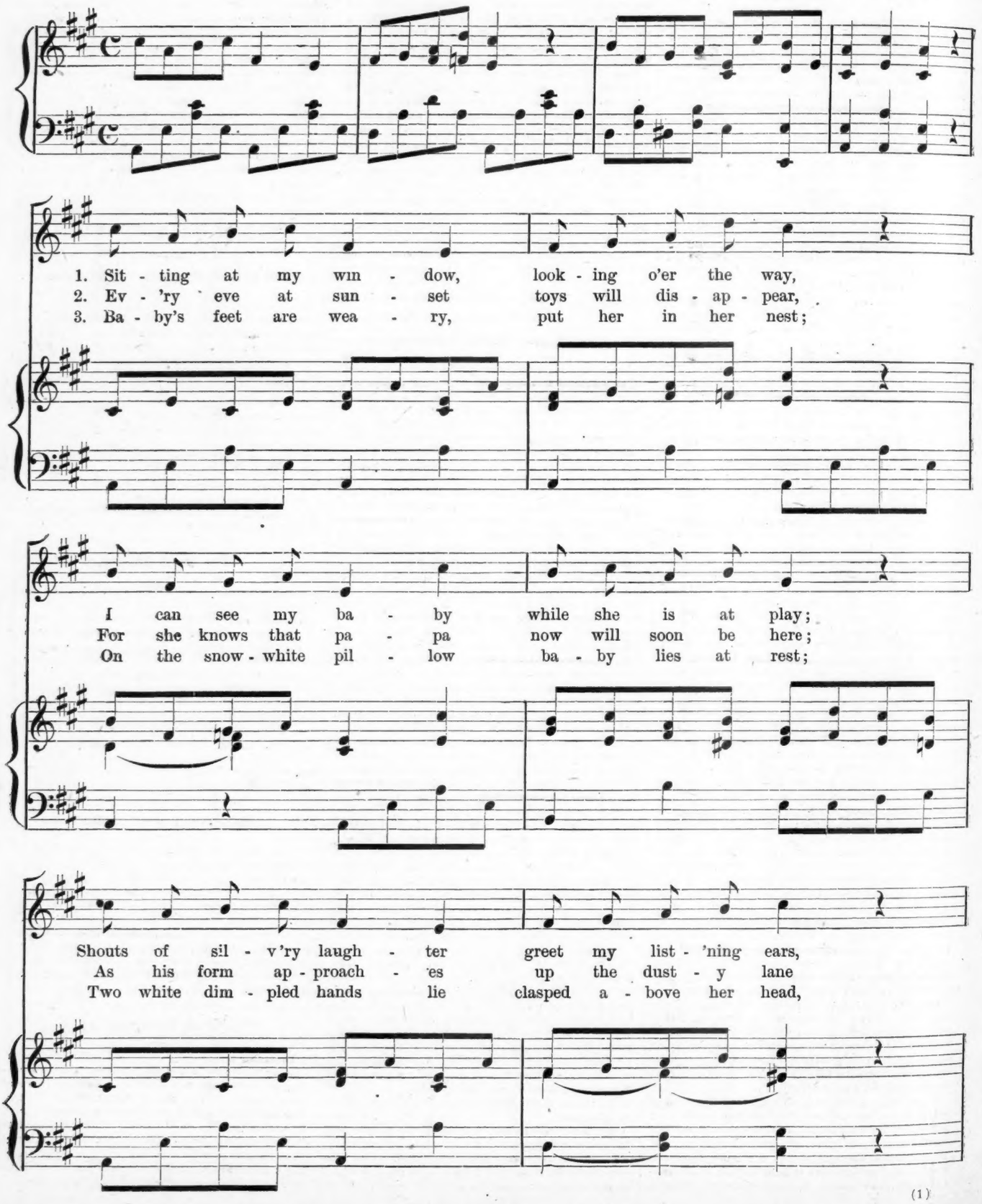
One of the most useful of articles in the house is a brush made of good hair. If properly cared for it will last for years, but buy only the best kind with the hair wired into the back. The cheap brushes have the hair glued in and will not stand water. Even the stove brush should be of the best, whether for use outside or inside. Choose one with a short handle and it will clean out every bit of dust from every nook and cranny. Stove ovens should have the soot and dust brushed out every day.

A Neat Sweeping Cap.

To make a sweeping cap, take a circle of cambric or silesia 18 inches in diameter. Make a casing an inch from the edge and run in a piece of thin elastic. Draw up to fit the head and fasten. The edge may be pinked all around or bound with a contrasting color. Aside from wearing this when sweeping, use it when cooking or baking; also when taking care of butter. Its advantages are manifest and its daintiness detracts nothing from the handsome appearance of the wearer.

WRITTEN EXPRESSLY FOR AMERICAN AGRICULTURIST.

WATCHING BABY PLAY.

ARTHUR M. COHEN.

1. Sit - ting at my win - dow, look - ing o'er the way,
2. Ev - 'ry eve at sun - set toys will dis - ap - pear,
3. Ba - by's feet are wea - ry, put her in her nest;
I can see my ba - by while she is at play;
For she knows that pa - pa now will soon be here;
On the snow - white pil - low ba - by lies at rest;
Shouts of sil - v'ry laugh - ter greet my list - 'ning ears,
As his form ap - proach - es up the dust - y lane
Two white dim - pled hands lie clasped a - bove her head,

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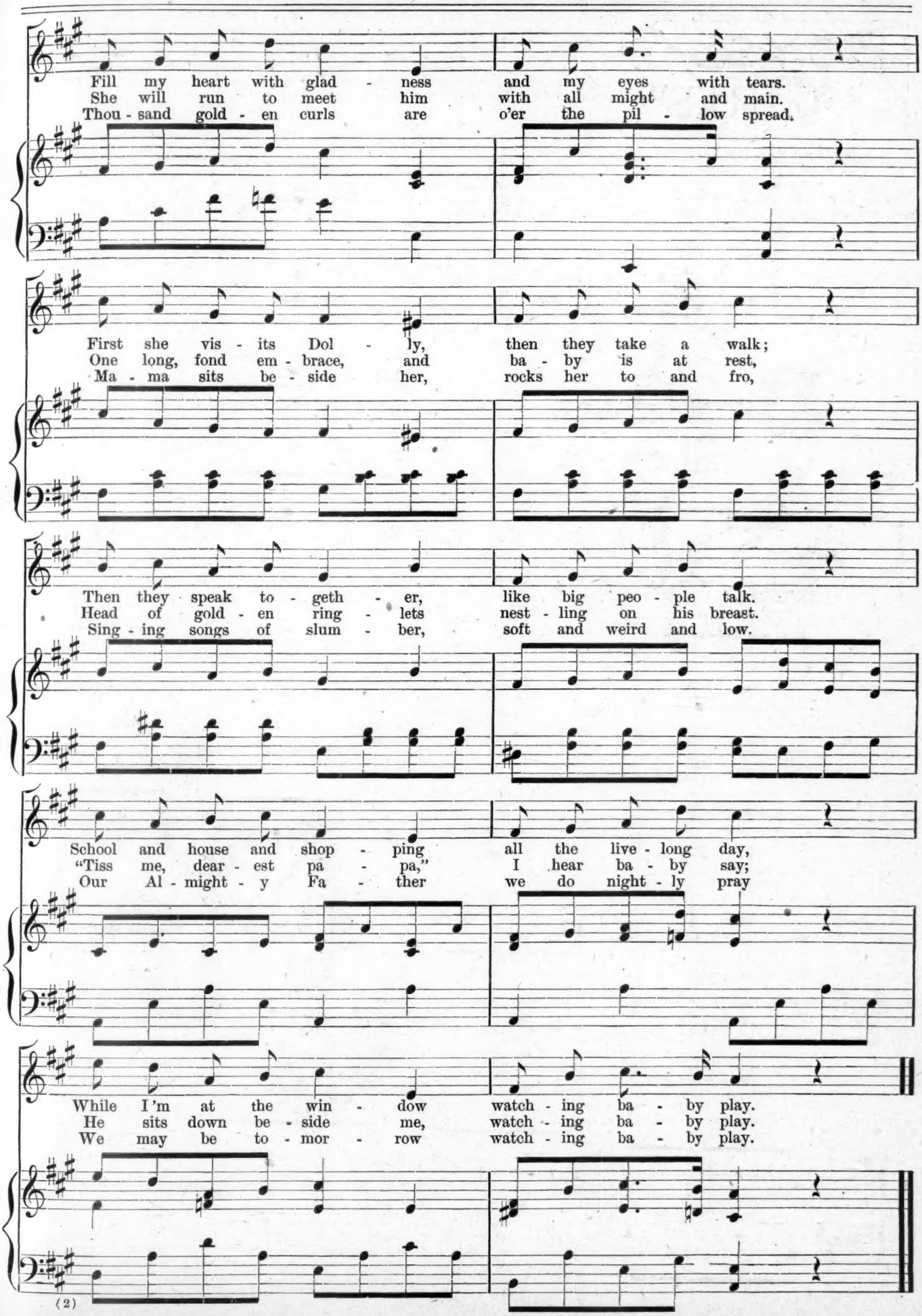
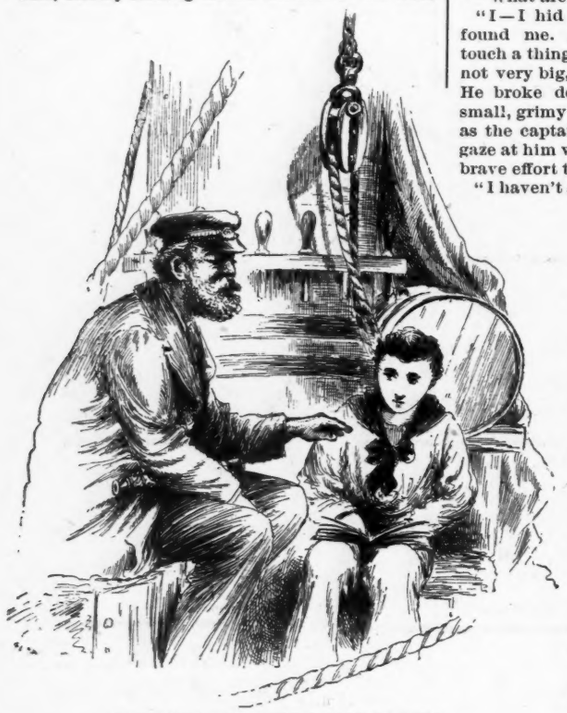

Fill my heart with glad - ness and my eyes with tears.
She will run to meet him with all might and main.
Thou - sand gold - en curls are o'er the pil - low spread.
First she vis - its Dol - ly, then they take a walk;
One long, fond em - brace, and ba - by is at rest,
Ma - ma sits be - side her, rocks her to and fro,
Then they speak to - geth - er, like big peo - ple talk.
Head of gold - en ring - lets nest - ling on his breast.
Sing - ing songs of slum - ber, soft and weird and low.
School and house and shop - ping all the live - long day,
"Tiss me, dear - est pa - pa," I hear ba - by say;
Our Al - might - y Fa - ther we do night - ly pray
While I'm at the win - dow watch - ing ba - by play.
He sits down be - side me, watch - ing ba - by play.
We may be to - mor - row watch - ing ba - by play.

BOYS & GIRLS.

How Joby Paid His Fare.

CHARLES LOTIN HILDRETH.

The sun had set, but the lower edges of the wild, stormy-looking clouds massed in the west were still aglow with vivid, crimson fire. In the east the gray gloom of the coming night was mounting up the sky, and here and there a pale star already glimmered in the dusk. A brisk wind, or what sailors call "a half gale," was blowing, and the waters of the English Channel were breaking in short, angry waves, of a deep green in the hollows, and snowy white where their crests curled and spouted in hissing foam. Far off to the southward a dim, bluish line, which only the experienced eye of a seaman could have recognized as land, marked the coast of France, while in the opposite quarter the chalky headlands of England gleamed faintly in the fading twilight.



THE CAPTAIN TEACHING JOBY TO READ.

The stout ship *Falcon*, leaning gallantly to the wind, was making her way down the Channel, bound for America. The sails had been reefed, the cables coiled, and everything made snug for the night. Captain Essex, pleased, as an old sailor always is when his vessel is well away from the dangers of the land, and making good progress under a steady wind, paced to and fro on his quarter-deck, gruffly humming a little song, the greater part of which was lost in his thick, bushy beard, though now and then you might have caught some words, as "The sea is the place for me, my lads," or "A lively ship and a willing crew."

Captain Essex's little song was interrupted by a sudden commotion in the forward part of the vessel. There was a sound of loud, angry talking, a hasty scuffling of feet, followed by the frightened sobbing of a child.

"Hallo!" exclaimed Captain Essex, "what is the meaning of that row?"

"A stowaway, sir," answered one of the men from below.

"A stowaway on my ship!" growled the captain. "Bring the rascal here! We'll give him a taste of the rope's end first, and then—but what is that?"

"The stowaway, sir," was the response, as two of the crew approached, leading between them a very small and very ragged boy.

The anger in the captain's face gave place to a look of astonishment, mingled with pity, as his eye rested upon the shivering form of the intruder. But he maintained the sternness of his tone as he addressed the boy.

"Well," said he, "what are you doing here?"

"N-nothing, sir," was the trembling reply.

"Who are you, and where did you come from? Speak up, now! No nonsense!"

"I'm Joby—Job Oliver, sir," said the boy, between the sobs, which he vainly endeavored to choke down. "I live in London, by the docks, sir."

"What are you doing here, then?"

"I—I hid away down below, and—and they found me. I wasn't doing anything. I didn't touch a thing. I thought they wouldn't mind. I'm not very big, you see, and I don't weigh much." He broke down with a gasp, and pressed his small, grimy fists into his streaming eyes. Then, as the captain remained silent, but continued to gaze at him with a tremendous frown, he made a brave effort to go on with his story.

"I haven't any mother or father, you see, and I have to earn my own living. Everybody says, 'He's too small. What's he good for?' and they don't take me; though I am strong. I can lift a trunk—a little one. I can run errands, very fast; but everybody says, 'Oh, *he's* too ragged and too dirty.' If I could get jobs, you see, I could get me a new pair of clothes. But I can't get jobs, and I can't get clothes, and everybody don't want me, and—" a fresh storm of sobs shook the small frame.

"But you haven't told me yet what you are doing on board this ship?" said the captain, preserving his severity with an effort.

"They said the ship was going to America," answered the boy. "Everybody is rich in America. Everybody wants you there, you see. Tom Dixey went there, and he makes a load of money."

"That's all very well," responded the captain; "but people who go to America pay for their passage, and to hide away so as to go without paying, is just the same as stealing so much money. Don't you know that?"

Evidently the boy had never taken that view of the question. He looked up at the captain's stern face with a frightened and startled expression. Then he began a hurried search in the pockets of his ragged jacket. From one he drew forth two coppers, from another a silver sixpence, and from a third a shilling, much battered, clipped and defaced. These he held out toward the captain.

"This is all I've got now. I earned the sixpence and the two pennies; the shilling a gentleman gave me. It's broken, but it's good silver, all the same."

"And what am I to do with these?" asked the captain.

"To pay my fare," replied the boy. "It's 'most enough, I think. I will earn the rest soon when I get over there."

The good captain could maintain his gravity no longer. A smile lighted up his rugged features, as he said kindly: "There, there, Joby, keep your money, my boy. You are an honest little fellow, after all. You shall stay with me on the *Falcon*, and we will make a man of you. How will that suit you?"

Joby was delighted, of course. The sailors, who are wonderfully handy at such things, devised a suit of clothing for his small body. He speedily became a great favorite with the crew of the *Falcon*, proving himself to be active and intelligent, and, what is far better, absolutely honest and truthful. The captain had grown very fond of Joby, and as for Joby—well, it was not long before everybody on board knew what Joby thought of the captain.

The *Falcon*, which was a sailing vessel, had met with head winds constantly since leaving the Channel, and on the fourth week out was struck by a heavy gale from the northeast. All day long the good ship labored with the mountainous waves, leaping and plunging till it seemed as though the groaning, creaking masts must come out of her. But she was a staunch, well-built craft, and had passed safely through many a worse tempest.

With the fall of the night, the gale increased in violence. The sails had been reduced to the heavy lower canvas, just sufficient to steady the vessel. The captain remained on deck, taking a position near the rail, where he could keep an eye on the rigging. Near him, sheltered by the bulwarks, sat little Joby, on a coil of rope.

At first the noise and confusion, the thunder of the water, the shriek of the wind through the cordage, and the wild pitching of the ship had frightened the boy. But when, by the light of a lantern near by, he saw the calm, resolute expression on the captain's face, he felt relieved, and rather enjoyed the excitement of the storm.

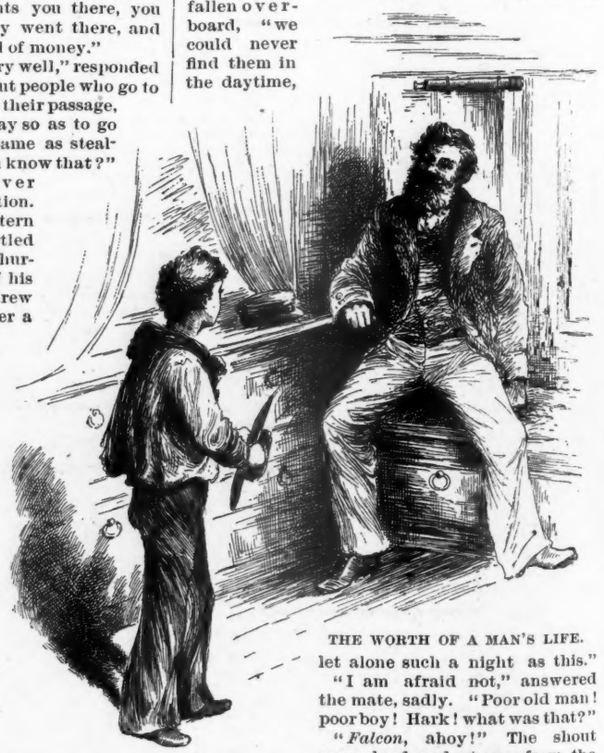
Suddenly, just as the captain was shouting an order through his trumpet, a vast billow seemed to rise out of the gloom and bear down upon the ship. It struck the vessel's side with an awful roar, throwing tons of water on the deck. Before he could save himself, the captain was lifted from his feet and flung overboard into the sea.

Almost at the same instant a small figure was seen to leap upon the rail, cling there a moment, and then leap outward into the darkness and disappear.

"Man overboard!"

The terrible cry rang above the roar of the tempest. For a moment all was panic and confusion. Then, under the mate's command, the ship was rounded to, with her head to the wind, and a boat ordered to be lowered.

"No use," said one of the men to the mate, who stood by the rail, near where the captain had fallen overboard, "we could never find them in the daytime, let alone such a night as this."



THE WORTH OF A MAN'S LIFE.

"I am afraid not," answered the mate, sadly. "Poor old man! poor boy! Hark! what was that?"

"*Falcon*, ahoy!" The shout came loud and strong from the darkness, not twenty yards from where the ship lay.

"The captain!" cried a dozen glad voices.

"Belay your jaw there, ye lubbers! Tail on to that line and haul us aboard, or we'll be adrift."

Line! Us! what could he mean? But the mate had already discovered a curious thing—a light but strong rope, fastened to a ring in the bulwark and extending outward into the darkness, toward

the spot whence the captain's voice proceeded. It was drawn tight, as if some heavy burden were towing at the end of it.

In an instant sturdy arms were pulling at it with a will. Then a stout rope was lowered, and up it, like a monkey, scrambled Joby, followed more slowly by Captain Essex.

Then a great cheer went up, drowning the roar of the storm itself, as the crew gathered about the dripping forms of the captain and his little friend. A few words served to explain what had happened.

Joby, with his eye on the captain, had seen him carried overboard. He knew that one end of the coil of light, tough rope upon which he sat was secured to the bulwark, for he had tied the knot himself, that very day. Without pausing to think of his own danger, he took the free end of the rope between his teeth, and was in the water nearly as soon as the captain himself.

Though he could swim like a duck, he was borne helplessly along on the crest of the waves, almost into the arms of Captain Essex, who caught him as he was sweeping by. The captain fastened the line about both of their bodies; and, partly swimming and partly towed by the ship, they had managed to keep their heads above the water until the *Falcon* was hove-to.

The storm blew itself out during the night, and the next morning dawned clear and calm. All the forenoon Joby was observed to be very grave and silent, as if he were pondering some important question. Finally he presented himself before the captain in his cabin.

"Well, my boy," said the captain, "what can I do for you?"

"A man's life is worth a good deal of money, isn't it?" asked Joby, twirling his cap nervously as he spoke. "Not a boy like me, but a grown man."

"Yes, of course, my lad," replied the captain. "A man's life is supposed to be the most valuable of his possessions."

"Well, then," said Joby, twirling his cap still more nervously, "they say I saved your life last night. I don't say it was much, you see. Any fellow who can swim could do the same; only I happened to do it."

"Yes, you certainly did it, Joby. And what then?"

"You see — you see," stammered Joby," I — I thought that would pay for my passage; then it wouldn't be stealing, you know."

Joby could not make out why the captain's honest eyes should suddenly grow moist, nor why the captain's strong right arm almost squeezed the breath out of his small body; nor yet why the captain's voice should be so husky, as he said:

"Joby, my lad, while old Tom Essex's hulk holds together, and a single timber of him floats, you shall never want for a berth, or be without a friend."

He's So Obliging.

LYNN SCOTTON.

"I can't make it out how it is that Jim Johnson always gets such good places," said Harry Smith, the carpenter's son, to another boy, as they were returning home one afternoon.

And Harry was not the only one who thought thus, for "Jim's luck" was the talk of the neighborhood. Jim was certainly no pattern of cleverness, of beauty, or strength; he could not do more than others, nor could he do it so well as many; but for all that, it was quite true he always had good places, good wages, and a good character. When he left one employer to go to another, it was generally said, "I would not part with him if I could help it; he is a good boy, and so obliging."

This was the secret of his good luck, he was "so obliging." Did the merchant, or the wagoner want an errand boy, or did any one want a job done at a moment's notice, it was only to get a sight of Jim, and it was as good as done; for Jim would hurry through his own business, without feeling it a trouble, in order to help.

When he was at home he kept the woodbox full of wood and his mother never had to ask him to bring in a bucket of water, and many other little things did he do in a cheerful manner; so that he was a great favorite. And if he saw younger boys in trouble he would try to help them out; and he put on his shoes again after having taken them off, one pouring, rainy night, to walk two miles to the town for a parcel containing a new gown, which the carrier had neglected to bring to the kitchen girl, who was crying her eyes out because she could not have it to wear next morning at her sister's wedding. But it was not so much what Jim did, but *how* he did it, that was so agreeable.

Two Ways of Doing Things.

ALICE E. PINNEY.

"Oh dear!" exclaimed Nelly Graham, a bright girl of 15 years, bursting into the room in her noisiest manner, "I wish I could do 40 things at once!"

Aunt Mercy, who sat quietly sewing beside the couch, on which a young girl, only a few years older than Nelly, was resting, glanced up with an almost severe expression on her face, and said, "If you would learn *not* to do 40 things at once your friends would have reason to be thankful."

"What is it now, Nelly?" inquired her sister Marian, who, though unable to take part in the merry-makings, always tried to appear interested in whatever was going on. Consequently, she did not have that feeling of being left out of everything, as invalids often do.

"Just lend me your thimble and a needle, Mary, while I catch this ruffle on to my dress, (I stepped on it coming up-stairs, I was in such a hurry), and I'll tell you all about it."

The next moment Nelly's reckless hands were turning the contents of Marian's dainty basket over and over, vainly trying to find the thimble and needle.

Aunt Mercy watched Marian's anxious face; for Marian, like many other delicate people, took a certain pleasure in having her belongings orderly and nice, and it really distressed her to see them treated so carelessly. But she often said to herself, "If I cannot be strong I need not be disagreeable." No one but Aunt Mercy knew how she felt, and it was her Aunt's ready hand which caught the vase of flowers which Nelly nearly turned over.

"Oh, here it is!" exclaimed Nelly. "I forgot that you kept your thimble in the little pocket. I never think of looking there for mine. Well, you see, Marian, I asked Letty Manning to spend to-morrow afternoon with us. I was so pleased when she said she would come. On the way home I met Kate and Will Hardy, and they asked me to go fishing with them to-morrow. They are going to take their lunch and have a jolly time. I told them that I was expecting company, and they told me to ask her to postpone her visit; but I don't believe papa would like me to do that, he thinks so much of having Letty here."

"Certainly he would not," said Aunt Mercy; "besides, you were going to take Marian for her drive in the morning, and gather some fresh ferns and mosses for her fernery. She has been anticipating it all the week."

"Why, so I was! I had forgotten all about that," replied Nelly thoughtlessly.

"What makes you so sober to-night, Marry?" inquired Nelly, after a moment's quiet. "I guess if you don't feel like talking I'll run away and practice awhile. This is such a busy world, you know, I must not waste any time."

A moment later a cry of dismay from little Tommy, who was playing in the hall, called Aunt Mercy from the room. She was just in time to hear Tommy passionately exclaiming "You've smashed my train of cars; you're the hatefullest girl! I wish you didn't live here!"

In vain Nelly tried to make the little fellow understand that it was an accident, that she was in such a hurry she did not see them.

"You've brokened 'em all up," sobbed Tommy, "And what's the use of your being in a hurry, when you never do any good things?" inquired Tommy, bluntly.

Nelly had received a home thrust which sobered her. She went on up to her room instead of going to her practicing. Was it true what little Tommy had said, that in spite of her hurry to do so much, she never did any good things? There were tears in her eyes as she asked Aunt Mercy, who had followed her, "Why is it, Auntie, that when I try so hard to please everybody and make them love me, that I always seem to do the wrong things?"

Then Aunt Mercy kindly explained to Nelly what many older people learn from experience, that it is not always *doing things* that make us useful or beloved; it is more often the thoughtfulness for others which prevents our speaking unkind words, or forgetting their comfort and pleasure, and the thousand and one little courtesies of everyday life which bring us true friends.

"Then I guess I will turn over a new leaf and stop trying to do so much hastily, and do what I do thoughtfully and well," said Nelly, with a smile shining through the tears.

A Royal Dinner.

HELEN EVERTSON SMITH.

It is not served in a grand hall, with troops of soft-footed, deft-handed waiters to attend upon the guests. But the names of the dishes are as long, and as difficult to pronounce, as if printed in Russian; and the viands taste as good as if cooked by the most famous *chef* who ever served a king.

In fact, it is a king's dinner to which we invite you to sit down, though his majesty's royal robe is very scant at both ends, and his crown is a tall silk hat that has once been worn by a United States Senator from the far West. But such small matters are of no account just now; we are hungry for our dinners!

But first it must be cooked, and the cook is no other than our host, a Tahitian King of power and dignity.

His first move is to dig a shallow hole in the ground. This he fills with hard and very dry wood, cut or broken into small pieces. Over this he places two dozen or so of round stones about the size of tennis balls. Then he lights the wood and makes a bright fire. While it is burning he has taken small pieces of beef, fowls, ripe and unripe bananas, and the tops of a wild plant, which somewhat resembles asparagus, and made them up into many separate little packages wrapped in banana leaves.

In about ten minutes the wood has burned out, the stones are hot, and the little packages are all ready to be laid between two layers of the hot stones, which are then quickly covered with fresh earth so tightly that no steam can escape.

For about fifteen minutes more we sit around the little mound thus made, in silent and attentive gravity. It would not be good manners to pay attention to anything else while the important process of cooking is going on.

Our royal cook knows just how long to wait. Then he gravely removes the earth and stones, so carefully that the cooked food is not injured. Each little package is placed upon a fresh banana leaf, and then with knives, fingers, and bits of cocoanut shell, the dainty morsels are divided and eaten with the accompaniments of calabashes full of cocoanut milk, and cold water from a beautiful running stream. No better dinner was ever set before a king, or given by a king.

Marian's Field.

CHARLES N. SINNETT.

"I should think grandpa would burn a lot of these old papers of his."

"They're old bills when he sold fish for ever so many years. They don't amount to anything."

"Only to make the house smell fishy on damp days when we can't go out to play."

"And to fall under the edge of the lounge where we'll have to pick them up as though each was a ten dollar bill."

Milly and Delia were evidently quite tired of Grandpa's looking over his old bills and accounts on stormy days. They watched him with some rather deep puckers on their faces, as they whispered in a corner of the room.

"You must try and be patient with grandpa now he's getting so old," said grandma, as he crossed the sitting-room as if just to look at her plants in the south window. "He had to work very hard when he bought fish of all the fishermen around here. They had to be taken up to city and sold, whether it was cold or hot. Or else they were dried in the yard at the shore on the great frames, or 'flakes,' as we call them; which meant lots of care for him."

That was quite a long talk for kind old grandma to make in her gentle voice, and Milly's head drooped a little as she said, "It must have been hard work."

"He did it so long that I suppose he can't forget about it and burn up the papers—if they do get in your way," said Delia.

"Yes, he likes to look them over. It seems to help him forget that he cannot work now as he used to."

"Should think it would take his mind back," whispered Milly, when grandma turned to go to her knitting, "they smell so strongly of fish." And

she went out of doors as though she could not endure the odor of the papers any longer.

The draught from the doorway was very strong. Several of grandpa's bills were scattered over the floor.

"Here they are," said little Marian who had been sitting close by the old man's side. She gathered up the papers as quickly as she could.

"Why, how spry you are," smiled grandpa. "It does me lots of good to have you so interested in my work. And you found that paper away under the lounge there! Well, well, I never noticed that it went there."

"Oh, I like to do it," answered Marian as though she did not see Delia smiling at her. "And grandpa, that paper bag you keep the bills in is all worn out. Won't you please let me put them in my nice calico bag that I keep my spools and pieces in?"

"Oh, that would be doing too much," said the old man. "I don't suppose they amount to a great deal. But I kind of like to look them over now and then."

But Marian saw how pleased grandpa looked and she quickly added, "They'll be so much nicer in there. And I can keep my things in the box that grandma gave me."

"Why—yes, dearie, if you think grandpa's old things are worth the trouble, you can do it." And the old man rubbed his spectacles as briskly as though the little help made him feel several years younger.

Delia went hurriedly out of the room when she saw how much in earnest her little sister was. "Isn't she queer!" she said to Nellie, whom she found in the garden. "She's given him her nice bag for those old smelly papers."

"She always was an odd little thing. She looked so sober when we were whispering there in the corner to-day. She'll be terribly old-fashioned if she stays down here in her vacation next summer. But I don't believe I want to come again. Everything goes right on without a bit of change." And Milly gave her head quite an impatient toss.

There was a great change in the old gray house by the sea before the sun set that night, though. Grandpa went into the sitting room to hang up his bag of papers in the closet in the corner. When grandma went in to see why he staid so long, there he sat in an armchair with a look on his face as though he were sleeping, He could not be wakened. God had called him home to heaven without one pain or struggle.

The shock of grandpa's death was such a blow to dear old grandma that she was ill for many days, and the children were all taken to their home in the city.

"Oh, mamma," said Marian one day in the fall, as she watched her mother reading a letter from the coast, "I'm sure that grandma is ever so much better. Didn't Aunt Eunice write real good news about her?"

"Yes, she is getting quite strong now, and the doctor is sure that she will live several years. But there's good news in here about my dear little girl. It is her love that has made grandma so well and happy."

"Why, I've only sent her some little letters," said Marian with a puzzled look, "and I guess she always knew how I loved her and grandpa."

"Grandpa forgot to have the deed of his best field recorded years ago, when he was very busy," answered mamma, as she stroked Marian's brown hair. "And when grandma found it out after his death she was very anxious. But now it is found in grandpa's bag of papers. My little girl picked it up from the floor for him the very day that he died. And so she saved the field, and made grandma so happy."

"I'm glad I helped a little," said Marian. "Oh, I remember now that paper looked different from the rest, and he had just let it fall from a bunch of paper that he never opened. He seemed to like the fish bills best."

"And grandma has named the field for you," said mamma softly. "She wishes all the neighbors to know how kind you were. It is to be Marian's Field."

And so many still speak of it and gladly tell the story of the thoughtful little city girl.

A Possible Future.

A school girl once said: "My roommate is a doctor's daughter, and has picked up various terms which she likes to press upon us. The ponderous name of the smallest bone in the ear is her favorite; yet, although I have heard it scores of times, I never attempted it myself. Yesterday, when those boys were airing their physiology, and I wanted to rival them, I could not pronounce that name. It was so exasperating. Why did I never master that bone? And yet who would have believed I could ever wish to use it!"

Many men lose to-morrow because they will not use to-day. Nothing that we learn but will sometime be of use to us, if in no more than broadening and deepening the channel of our thoughts. At any moment we may unconsciously hold the dice of our future in our hands. Let us take care that we do not throw them away.

Money Making For Boys.

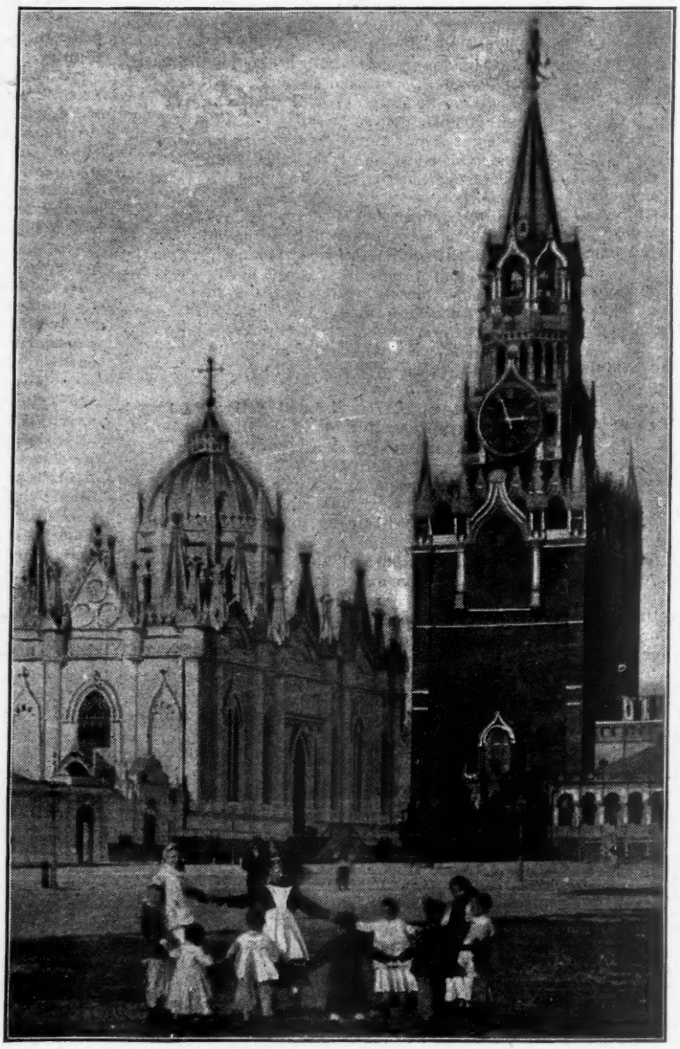
Any wide-awake boy can take sample "pint" cans of his mother's wares and get orders enough in a week to keep her busy all season. Few of the housekeepers in our larger towns and cities want to do their own canning, pickling and preserving, but "factory stuff" does not suit, and they would gladly pay a fair price for the palatable, "home-made" article. One could not expect to more than thoroughly advertise his business the first year, but it would be a growing industry.

A Queer Playground.

FRANK G. CARPENTER.

"Ring-around-a-rosy
Pocketful of posy,
Ring-around-a-rosy
Pocketful of posy.
Ring-a-round-a-rosy
And all squat down."

The words were in Russian, and they were sung by ten little Russian boys and girls who, with linked hands, were circling around one of the queerest playgrounds of the world. It was in the Greart of the great city of Moscow, right under the tower of the famed "Sacred Gate of the Redeemer," and within a stone's throw of the famous church of St. Basil. With not a thought of the historic earth under their feet, nor with an idea of the terrible associations which clung to the old buildings about them, they danced as merrily as though they were little Americans on some village common, and their voices rang out above the chimes of the great tower behind them. As I watched them I could not but think of their strange surroundings. The gate of that tower leads into the Kremlin, the vast walled enclosure which is filled with Russia's most famous churches and its holiest shrines. Through that gate no one, not even the Czar, passes without taking off his hat, and the foreigner, who will presume to do so, would have his hat knocked from his head by the indignant people. Years ago it was one of the unwritten laws of the empire that the man who attempted to go through this gate without uncovering his head, should be made to bow to the ground fifty times, and during the reign of Peter the Great every man who passed through this gate with a beard on his face had to pay a fine. Above the entrance there is an icon, or sacred picture, which is known as that of the "Redeemer of Smolensk," and criminals in times past were brought here to be executed, in order that they might pray to this picture before dying. This picture is considered one of the holiest of Russia, and it was discovered at Smolensk five hundred years ago. It is the picture that makes the gate sacred, and it is said that when the Tartars stormed Moscow, they attempted to take it down, but that every ladder which they put up against the tower broke when they tried to climb it, and that the French, when they came here under Napoleon and attempted to shoot the picture down, had their powder wet by an angel. The picture has hung there for over four hundred years, and the Russians reverence it more to-day than ever.



A QUEER PLAYGROUND.

Just opposite this gate is the wonderful church of St. Basil, which was built by Ivan the Terrible. It is a curiously shaped architectural monstrosity with domes covered with knobs and made in the shape of onions turned upside down. When it was completed the Emperor asked its architect whether he could make another one like it, and upon being told that he could, he ordered the man's eyes to be put out at once that this might be the only church of its kind in the world. The art lovers of to-day, however, have pronounced it ugly rather than beautiful, and when Napoleon came to Moscow he ordered it to be destroyed, but, for some reason or other, his orders were not carried out.

Upon a big stone table, surrounded by a low wall near this church, and overlooking the playground

of the little Russians, was, for years, the place of execution of Russia. This is a circular stone about thirty feet in diameter, and it has grooves upon it so arranged to carry off the blood of the executed. Its history is as full of terrible stories as is that of the Tower of England, but, like the Tower, its day of being a participant in the tragedies of the empire has passed. The civilization of the 19th century prevents a repetition of the cruelties of the emperors of the past, and the cheerful laugh of the little children on the green is a better index of the future than all of these horrible surroundings which I have described.

A Simple Matter of Understanding.

Aunt Hannah was noted far and near for her sharp tongue and general fault-finding. Uncle Josh was almost equally well known for his slow-going ways and mild disposition. Naturally, therefore, a great deal of sympathy existed among the neighbors for Uncle Josh.

"Say, Uncle Josh," said a dapper young summer boarder, one day, "I wouldn't let that woman boss me around like that if I were in your place. I'd just give her one good setting down; 't would do her good."

"Would ye, naow?" said Uncle Josh, sitting comfortably back against a haymow. "Wal, 'f I did I wouldn't hev my way in a tarnal thing. As 't is, I most alwuz hev it."

"I don't see how you make that out."

"Wall, young feller, ye might know all the ologies in creation, but ye don't know much 'bout human natur'. There's Hannah, now. Ye'll never know her 'thout ye study her pritty cluss. I tell ye" (admiringly) "that woman's got a character. Ye can't see through her in a jiff.

"Naow, as I told ye, there ain't hardly a thing that she sputters an' snaps over but it comes out jest my way. Hannah's mind, ye see, is kinder slow in workin', an' if I make a su'gestion diff'runt from her idee, she can't see through it 'tall, an' jest for the minute she thinks I'm kinder idiotic an' don't know nothin', an' course she nat'rally hez to sort o' 'xplain her feelin's. Then I go off an' won't say nothin' more 'bout it, an' bimeby the thing kinder comes to her, an' she does it my way. So ye see I gin'rally git things my own way. But 'f I should give her a settin' down—jimminy! I wouldn't. I know folks pity me, but lor', they needn't. In fact, nobuddy kin handle Hannah but me. An' as fur me, I wouldn't care a fig for a woman as didn't hev to be studied out. Human natur' 's my hobby, ye see. So, young feller, ye'd better save your sympathy fur somebuddy else."

Then the old man rose, stretched himself, stuck a straw in his mouth, and went off, chuckling, in the direction of the house, leaving the dapper summer boarder something to think about.

Storied Words.

LUCY ELLIOTT KEELER.

How many know the origin of the word *cur?* The name runs back to the days when the chase was an affair of State. Then by special enactment dogs of the village, mostly low-bred mongrels, were required to be curtailed of the feather, so as to be readily recognized by the huntsman from the true-nozed deerhounds whom the plebians might draw to a false scent. From curtailed dog to cur dog or simply cur, the descent is easy. *Terrier* is a dog that pursues animals to their burrows in the earth—the Latin word for earth being *terra*.

An *assassin* is a member of the sect of the "Assassins" founded by Hassan ben Sahah in 1090. This order derived its name from that of its founder or from that of the intoxicating drug (hasheesh) usually taken by those selected to carry out his commands in the way of "removing" any person or persons obnoxious to him. A *rum chap* is a literal translation of gypsy lad; *pal* in the same dialect, is simply brother; *hussy* was once a respectable housewife; and a *knave* is knabe, meaning a German boy.

The French have such beautiful proverbs about children that, if they were lived up to, French children should lead the happiest of lives. One rule for childhood is, "No cares, no fears, no tumult, no strife—all merriment." Another says that "childhood is the holiday of life," and bids parents see to it that it be made such.

OUR LITTLE FOLKS.

Willie's Dream.

HENRY D. TAYLOR.

Willie Jones was a meddler. He could not see a box or a bundle but what he must open it and see what was in it. It did not make any difference to whom it belonged. His father had punished him many times for it, but the next box he saw his curiosity got the best of him, and he forgot the punishment and opened the box.

One day his father laid a box of cartridges down on the table while he went into the next room for his gun. He was gone only a minute, but that

FIVE FUNNY FELLOWS.

was long enough for Willie to get up in a chair and open the box. His father came in just as he was taking the cartridges out of the box.

"What are you doing there?" he said, as he took the boy down from the chair.

"Only seeing what was in the box."

"Was it your box?"

"No, sir!"

"Papa must punish you for meddling."

"But I did not mean to meddle, papa, I only forgot."

"Well, I shall not forget that I promised to punish you every time you opened a box that did not belong to you." Then his father told him what the cartridges were, and that if he had dropped one on the floor it might have gone off and killed him. Willie had lots of time to think about it, for he was sent to his room the middle of the afternoon, and had to stay there until the next morning.

For several days Willie was a pretty good boy, because he did not get a chance to look into any more boxes, and when he went to bed, he told his mother that he had not meddled.

"I'm glad of that," said his mother, "and if you will not meddle to-morrow, I will take you for a ride on the cars Friday."

"O, I surely will not," said Willie, and he was so pleased with the idea of the ride that he did not get to sleep for half an hour. He thought he had not been asleep at all when he heard a funny sound, like the squeak of a mouse. He sat up in bed, and there on the floor he saw five funny little fellows, and they appeared to be in earnest conversation. He listened and heard one of them say:

"I think we had better aim them all at him and kill him at once, for he is not worth keeping alive, he meddles so."

Willie looked to see what the man was pointing at, and saw a lot of cartridges on the floor. Some were standing up, and some were lying down. One of the little men had a ball in his hand, which he was about to roll at the cartridges, just as if he were playing tenpins, but he had stopped to hear what the man who pointed was saying:

"I don't think so," said the one who stood nearest the cartridges. "I think we ought to fire them in the air and scare him. That may do enough good to stop him from meddling. If not, we can come again in a day or two and finish him. What do you say, Professor?"

The professor folded his arms and said:

"Well, I don't know. A meddler is the worst boy I ever knew, but this fellow is young, and may be he may get over it. I'm in favor of giving him a few days more on trial. What do you say, Doctor?"

The doctor was sitting down with his arms folded on his knees, and Willie waited in breathless silence to hear what he would say.

"Perhaps we might give him one more chance, though I haven't much faith in his doing any better."

"Oh, I will, I will!" cried Willie. "Just try me once more, and I will show you that I can keep my hands off what don't belong to me."

"Oh, ho, the little fellow is awake, is he?" said the professor, as he turned his eyes up to the bed.

"Yes, sir, I'm awake, and if you won't kill me I'll promise never to meddle again."

"How are we to know that?" asked the doctor.

"Just give me a chance and see," said Willie, "and if I forget you can come again."

"I think that will be a good plan," said the professor, and the little men gathered up the cartridges and went out of the room.

Willie lay down, and in a few minutes had forgotten all about the little men in a sound sleep. When he awoke in the morning the first thing he thought of was the narrow escape he had had in the night. At first he thought he would tell his mother about it, but he knew she would tell him it was only a dream, and he thought he knew better than that, for it really seemed as if he had seen the men and talked with them. Willie's father noticed the next day that he was rather more quiet than usual, and did not know what to make of it. He knew that his mother had promised to take him on the cars if he did not meddle all day, and so he thought he would try him and see if he had forgotten his punishment. He took a box into the room and put it on the table. Willie saw him set the box down, but he remembered the warning of the little men, and did not go near it, though he heard a noise in the box, and wondered what it was. About an hour later his father came in for the box. Willie was still in the room, and his father was pleased to see that he had not meddled with it. There was a live mouse in the box, and if Willie had opened it the mouse would have got out, and then his father would have caught it. Willie did not know this, of course, nor did his father for a minute think why Willie did not touch the box, for he did not know of the visit of the little tenpin players.

Willie went with his mother on the cars, and from that day to this he has never been called a meddler.

Our Puzzle Department.

DOUBLE BIOGRAPHICAL ACROSTIC.

Each number and star represent a letter, and every character represented is mentioned in Webster's unabridged dictionary. Answers should be received on or before October 1, and should be addressed to Puzzle Editor AMERICAN AGRICULTURIST, 52 Lafayette Place, New York. The prizes will be $3, a year's subscription to the AMERICAN AGRICULTURIST, a book "The Law Without Lawyers," and a pocket knife.

1	*	*	*	*	10
2	*	*	*	*	11
3	*	*	*	*	12
4	*	*	*	*	13
5	*	*	*	*	14
6	*	*	*	*	15
7	*	*	*	*	16
8	*	*	*	*	17
9	*	*	*	*	18

1 to 10, British Physicist, born 1788.
2 to 11, Roman General, born 396.
3 to 12, Danish Historian, born 1759.
4 to 13, Italian Anatomist, born 1747.
5 to 14, American Lawyer, born 1804.
6 to 15, French Painter, born 1758.
7 to 16, Wife of King Mark of Cornwall, made famous in one of Tennyson's "Idylls of the Kings."
8 to 17, British General, born 1785.
9 to 18, Spanish Governor, born 1460.
Initials 1 to 9, Italian Architect, born 1479.
Finals 10 to 18, Spanish General, born 1792.

THE JUNE PRIZE WINNERS.

1, Mrs. Emily Buhrer, Montana, $3; 2, Margaretta H. Palmer, Delaware, a year's subscription to the AMERICAN AGRICULTURIST; 3, Mrs. Angie Crawford, Maine, card and scrap album; 4, Mrs. C. D. Holt, Kentucky, Columbian souvenir spoon.

We think it will not be necessary to take the space to print the answers to this puzzle. The prize winners were chosen because their replies and descriptions were the best and most concisely written.

Little Nelly was riding in the electric car with mamma. Something blocked the track in front and the car had to stop. "I wish I knew where Queen street was," said mamma, "and I would get out and walk." "Isn't it wonnerful," said Nelly, "how the car knows where Queen street is? I don't unnerstan' it at all."

British Columbia Farming.

British Columbia and Northwestern Washington are seamed by deep rivers, along the bottoms of which very rich land is found. The mountain ranges which intersect the country are covered to the water's edge with forests of cedar and pine of enormous size and rapidly increasing value, which will for many years support a lumber industry of great importance. The country is rich in minerals from coal up to gold, from which, as fresh discoveries are made, considerable prosperity is sure to follow.

Besides the valleys and deltas of the great rivers, whose only drawback is the risk of being swept by floods, there are, in the interior, high plateaus, well adapted for mixed farming, and the district referred to is one of the best in the province for such pursuits. But there is no free government land, and what there is open to preëmption is not, as on the flat country east of the Rocky mountains, staked out in quarter sections, the quality of which can almost be learned in the nearest land office. Even when the new comer has hunted up a bit of land on which it may be prudent for him to settle, he will, as a rule, find that it will take years of labor, for which his previous experience, even on a farm, supplies very little guidance. It is only a few months since a newspaper, published in this very Gold Mountain district, found it necessary to publish the following much needed warning.

"There is absolutely no room in this portion of the interior for that very common type—the man who wants to take up '200 or 300 acres of prairie land near Vernon, Enderby, or some other town, all ready for the plow,' and who expects to get it at $1.00 per acre."

For sturdy and pushing men of the true pioneer type, who are prepared to work very hard at the outset and wait for years for the reward which comes surely to the right men, the section of country spoken of is a very good one, and the coast towns and mining and lumbering camps will buy all he can produce at a higher price than is paid anywhere else. Butter, eggs, pork, beef, are all dearer there than anywhere else I know. Lord Aberdeen is now settling a large block of land which he bought there two years ago, with capable farm hands from Aberdeenshire. Fruit raising, for which some parts of the country are admirably adapted, forms a leading feature in their scheme of farming. I have much confidence in the ultimate success of this venture, but the individual fruit grower complains that the middle man wants as much for selling the crop as the grower for his trouble in producing it.

The climate is, for an Englishman, one of the best on this continent, quite free from the extremes of summer and winter temperature found east of the mountains. As a rule the rainfall along the coast and west sides of the mountain ranges is great, sometimes excessive. But further inland it is sometimes too dry, and there is complaint to that effect from Kamloops, 250 miles from the coast. Of course the local agent from whom such emigrants are to buy their tickets will paint a much more glowing picture than my cool matter of fact outline, but pioneering is not exactly picnicking in any country I have yet seen or heard of, and the man who sets a stout heart to a steep climb is the only man who will ever make a success of it.

Let me give a word of caution to those who think they are sure to strike something once they get there. The coast towns have been crowded for years with just such people, some of them very capable and ultimately doing well, others the reverse and faring very badly. Inquirers after a new home will find in British Columbia as fair a chance as they are likely to get anywhere else, as every place has its special drawbacks. But wherever they try let them put every penny they can spare into the nearest government savings bank and keep it there in spite of all temptations to the contrary for two years at least, living quietly and taking work at whatever they can get hold of, if possible in the line which they want to follow out. By doing so they will at the end of the term of probation have much valuable experience and some money. Spend your money freely and make a showy start, and you will have a lot of experience but some other fellow will have your money. R. WAUGH, Manitoba.

Corn Growing in South-West Kansas.

Successful corn culture in South-western Kansas is by no means a certain or an easy task. During the past eight years it has been amply demonstrated that the methods of Iowa and Illinois or of Eastern Kansas, will not succeed in this drier climate. Our chief trouble is the irregular supply of moisture. The rains we have during the corn-growing season, are usually very heavy. If these were divided into showers, coming when needed, the amount would be ample. As that is beyond our control, we must utilize all possible means of saving the moisture in the ground. The way suggested for doing this are numerous. I have found none so good for my use as frequent shallow cultivation. Several years ago I was watching the growth and cultivation of a large corn field belonging to a neighbor. The work had been most thoroughly done; the field was clean and mellow. The last cultivation was given when the tassels were almost ready to show. When about half of the field had been laid by, there came a very heavy rain. The remainder of the field was finished as soon after as the ground would do to work. At husking time, the yield in the part of the field plowed after the rain was found to be nearly double that of the part plowed before the rain. On seeing so much difference in the yield, I examined other fields and invariably found more and better corn in the fields, or parts of the fields, plowed after that rain. There were as many reasons given for this difference as there were fields. I believed the true reason to be that the late cultivation broke up the crust, formed by the heavy rain, lessened the moisture conducting power of the surface soil, and thus prevented the evaporation that took place rapidly from soil not so disturbed. Acting upon this theory, I have made it a rule to give my corn a shallow cultivation as soon after each rain as the ground is dry enough to work. The results have fulfilled my expectations. The plant must not be root-pruned in this dry region for it needs all its roots at work to supply moisture, and even then the supply is likely to be less than is needed for a large crop.

W. V. JACKSON, Comanche Co., Kan.

On the St. Lawrence River.

The "Glebe Lands," across the St. Regis river, from the village, were once all owned by the Indian church, and were cultivated under the immediate direction of the first Catholic missionaries there; but the church no longer has the title. The greater portion of the district is now within the United States, while the church building and the home of the resident priest are in Canada. It is a fine-looking farm district, and the Indian farmers are quite successful with wheat and oats. Corn, however, is not much cultivated in large quantities, but more commonly than corn may be seen potatoes, or peas, or beans. Some fences are of rail; some are of saplings, trimmed; some are of slabs or rough boards. Some are quite rudely made; some are fastened together with withes. Some of the farms, instead of having fences of any kind of wood, are surrounded by rows of piled-up boulders, or pieces of limestone.

One afternoon I rowed for a number of miles down the St. Lawrence river, and was surprised to find how much grander and more impressive the river effects are than when viewed from the deck of a steamer. The beautiful islands, embosomed on the tranquil water; the rounding shore, curving in far-reaching sweeps; the magnificent spaces where the river opens out with miles of water, hemmed in by dark green woods, all were unspeakably beautiful. And then came the row homeward. The sun set gloriously, showing an infinite variety of tints and colors upon water and sky, the river grew somberly dark, the islands seemed spirit haunted, and the cry of the loon echoed with melancholy cadences across the water. Now and then a boat, manned by Indian fishermen, shot past us, and as we rounded a point the scattered lights of the town could be seen. We landed near the old stone church, a quaintly rugged, weather beaten pile, which even in the latter part of the century gone, welcomed the Indians to worship and prayer. Close beside the church is the little graveyard, and a sad sight it is; for the little space was fully occupied, years since, by graves, and for a long time past new interments have been made by placing the coffins on the ground and putting earth on top. Thus the graveyard space is now some feet above the level of the land round about, and is held in place by a wall of stone.

On Saturday nights the Indian children are given a special wash, the floors are given a special scrub, and the homes are given a special setting to rights; all in preparation for the following day. The people are devout Catholics, and consider it both their privilege and duty to attend church, and it is a pleasant sight to see them assemble. Many come on foot down the main street of the village, the men attired with neatness, and the women with their blankets draped artistically over their heads and about their bodies. Others come by wagon, and some by boat. In the church one notices at once the profoundly earnest faces of both old and young. An aged man, with bowed head, whispers his prayers and counts his beads. Youths gravely bear the tall candlesticks and assist the priest in the service. The women draw their blankets more closely about their faces, and listen with devout attention. An Indian plays the organ, an Indian choir sings, and it is indescribably pathetic to hear them chant Christian hymns in Mohawk.

Some of the barns are of logs, and are built in separate sections, of equal height, with the intermediate space roofed over by the common roof, just like a type which I have frequently noticed in some portions of Kentucky. There are great commons about the Indian village, and there horses and cattle feed, and they may freely wander along the roads or the village streets instead. St. Regis is a most interesting place to visit, and one who goes there cannot well fail to be impressed with the possibilities of Indian development under civilization.

ROBERT SHACKLETON, JR., Montreal, Canada.

Improved Farming in Utah.

Many small farmers in Utah have, in the past twenty years, worked at such a great variety of employments, that each may well be called "a jack of all trades," indeed. But, owing to this great diversity of labor, the farmer has had "too many irons in the fire" to succeed well in tilling the soil. The farms everywhere have been neglected. Irrigating canals and ditches have been allowed to become hedge rows of willows, alders and wild roses, filled between with a jungle of wild parsnips, and other weeds, until it is now a struggle to subdue them.

As the country is rapidly growing in wealth and population, the demand for all that the small farmers produce is as rapidly increasing. This has already created a feeling to become more skillful farmers, and an effort is being made toward cleaner culture, and better management. At present, with water for irrigation, and clean tillage, good soil produces about 40 bushels of the very best grade of wheat to the acre. Potatoes yield from 250 to 500 bushels an acre, and all usual farm crops yield abundantly. Owing to the natural fertility of the soil, but little attention has been given to fertilizing, and farmers are still very wasteful and careless about manuring the land. Commercial fertilizers are almost unknown. There is very seldom an "off year" when crops fail, for under the system of irrigation, farm produce brings a certain income from year to year.

Except a few insect pests like the codlin moth of the apple, and the corn worm, the gardens, fields and orchards are singularly free from destructive insects. Occasionally the tent caterpillars appear in the orchards, and the native grasshoppers or locusts injure the alfalfa fields, but the damage is usually confined to a limited area of country. Plums, peaches, pears and apricots, along with every kind of small fruit usually grown in this latitude, grow thriftily and bear large quantities of the finest flavored fruits produced in the West. Utah is fast becoming a great fruit producing country, and dried fruit is exported in carload lots.

The Utah farmers are using all the latest improved agricultural implements and machines, their progress in adopting labor-saving machinery comparing favorably with any part of the Union. Nearly every farmer owns his farm and homestead, and but very little real estate is mortgaged. Neat and substantial brick dwellings are now being constructed on the small farms near the vil-

lages, forming neighborhoods but little scattered, where the same social ties that obtain in the villages are still maintained. As fast as artesian water can be procured on the outlying farms to supply the households and gardens, they will be built upon, and the village homesteads sold to mechanics and those whose pursuits require them to dwell in town.

J. F. TOWNSHEND, Utah Co., Utah.

Pineapples in Florida.

The experiment of cultivating the pineapple in DeSoto Co., Florida, appears to be a success. Only about three years have elapsed since the first slips were planted in this county, and now there are pines growing, ranging from the little bloom in the plant to the ripe fruit. The severe winter having only injured the tip of the spines, the first planted have already produced crops 18 months after the suckers were planted. The profit appears to be quite flattering. The soil is fine sand. Besides the pines, limes, lemons, oranges, guavas, citron and cassava all grow and yield in great profusion. The water is fine, consisting of large springs, or lakes, which abound in bass and other fish. The timber is yellow pine, and the land open bottom, so that comparatively little labor is required to prepare it for planting.

J. FLOMERFELT, DeSoto Co., Fla.

The Harvest in South Dakota.

Last year Walworth county raised over one million bushels of grain, some land yielding as high as 43 bushels to the acre. Corn, oats, barley, and all kinds of garden truck do well, and watermelons, squash, potatoes and onions do exceedingly well. Our county's population consists of about 600 families, with an average of one hundred acres to the family. We raise more crops than we can find harvest hands to handle. Many acres of grain were left standing. A farm hand gets $25 per month and board, and during harvest and threshing season, hands get from $2.50 to $4 per day and board. There is still considerable government land in the county, owing to distance from a railroad. But this obstacle will be overcome this year. We are a hustling people, and a little matter of that kind is easily remedied. Stocks are being issued, and the people of the county are building a motor line to connect with a railroad, which will save us many dollars.

H. R. DEMALIGNON, Walworth Co., S. D.

Dairying in New South Wales.

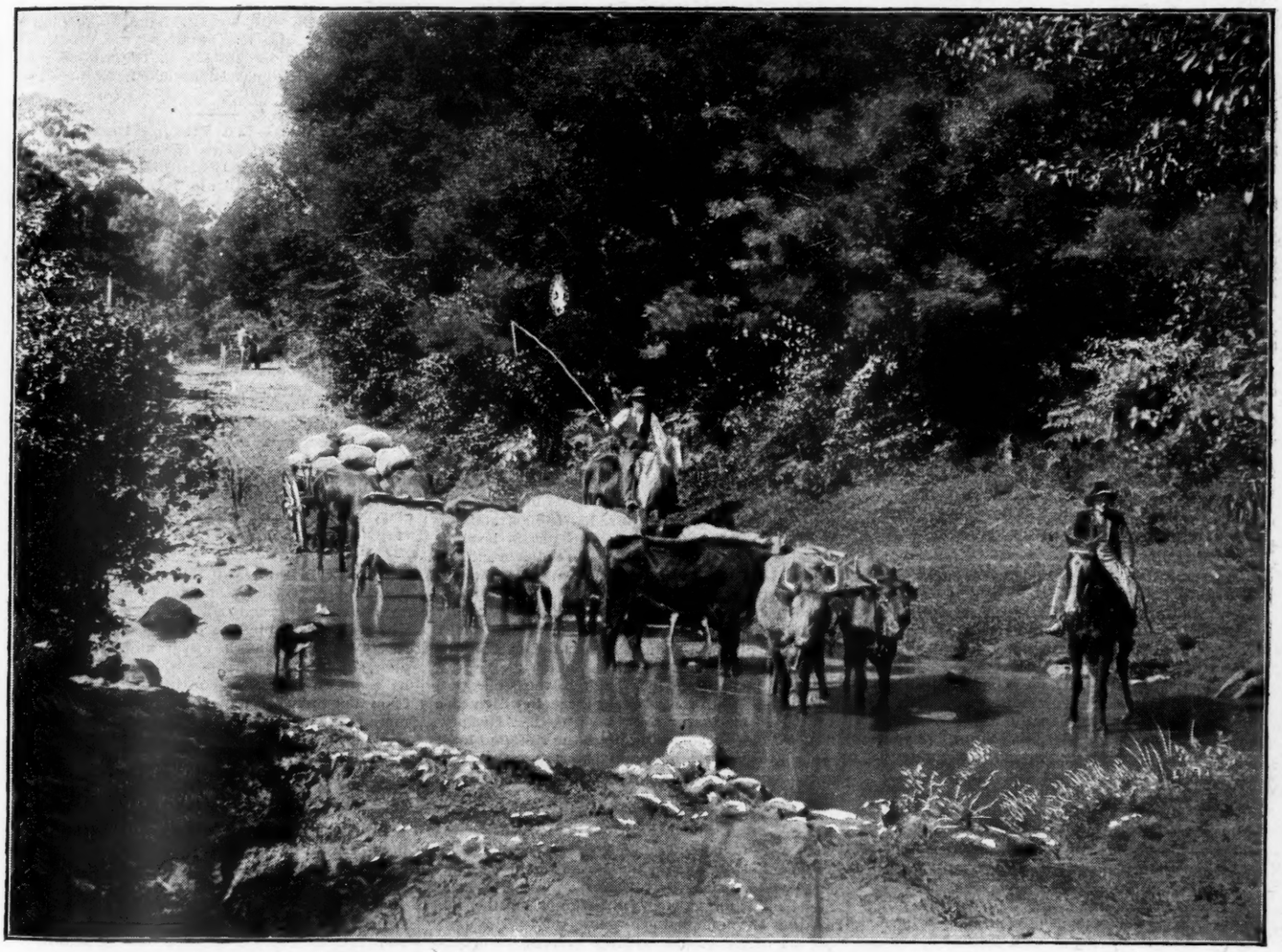
New South Wales, Australia, possesses so great a variety of soils and climate that almost any kind of crop can be grown, whether adapted to cold, temperate or tropical regions. Though the nature of the soil varies, it is almost everywhere susceptible of cultivation. The south coast districts are especially adapted to dairy farming, and it is from Illawarra, Camden, Shoalhaven, Kiama, and Eden, that Sydney derives most of the dairy produce which it requires for the daily consumption of its population. The area under cultivation, in the strict sense of the term, not including that portion seeded to tame grasses, is only about 50,000 acres, or about one-thirtieth of the alienated lands. Dairy produce forms the basis of the industry of this portion of New South Wales; and besides grasses the principal crops grown are maize and potatoes, which generally give excellent average returns. Nearly 150,000 acres are laid down in permanent tame grasses, and in the whole Colony there are 365,000 acres of tame pastured meadow. There is a comparatively large increase in the number of milking cattle, as many of the stockowners are turning their attention to dairying instead of fattening for market, and it is believed that this change will continue and in time become general throughout the Colony, as dairying, properly conducted, yields very satisfactory returns. Frozen milk and butter are carried by fast steamers to the great British markets, and much cheese is also sent abroad. The introduction of the factory system, and of improved appliances, together with the increase of railway communication, has done much towards developing the dairy industry. [Our illustration, engraved from a photograph sent us by John Plumer of Sydney, represents a view of a ford on the Cordeaux river, in the fertile Illawara district.]

T. A. COGHLAN, N. S. W., Australia.

Horticulture in Northern Mississippi.

The average farmer of northern Mississippi raises his cotton and corn patch, turning his dozen or two hogs on the range, rarely feeding even those intended for slaughter. The immense quantities of acorn and hickory mast and the open winters render feeding unnecessary. The principal growth of timber includes all varieties of oak and most of the nut-bearing trees. Large flocks of goats are common on the range. Cattle and sheep receive very little attention in winter, though large numbers of the former are annually shipped out of the country. Owing to the primitive mode of agriculture, the broken character of the country and sandy soil land that will at first produce 30 or 40 bushels of corn to the acre is worn out in a few years when cultivated in cotton. The first inhabitant is generally willing to sell cheap and move on. The possibilities of this country can hardly be estimated in the way of stock raising and the production of fruit and vegetables. Peaches, plums and grapes grow to great perfection. Small fruits and vegetables can be produced cheaply. Several varieties of hardy vegetables will grow almost continuously during the winter season, forcing beds could be easily managed. The people are being aroused to the importance of the vegetable and fruit industry. A Shippers' Association has been formed at Booneville, and a canning and a box factory are located there.

C. J. WILLIAMS, Prentiss Co., Miss.



FORDING THE CORDEAUX RIVER, AUSTRALIA.

Novel Method for Hulling Walnuts.—C. T. Umsted, Bourbon Co., Kans., writes us: "Those who have had experience in hulling walnuts, know how tedious and laborious it is to beat them out of their hulls with a stick. After several experiments, I have, at last, found a method which, for ease and simplicity, can hardly be excelled. With but little regulating, a cornsheller can be used successfully in hulling walnuts. First regulate the sheller so that the opening through which the ear passes will admit a medium-sized walnut with the hull off. A large walnut should fit tightly, as the spring on the sheller will allow the nut to pass through without breaking it. I have used this method successfully, and find that the nut is seldom, if ever, broken. Of course the sheller does not separate the hull from the nut; but this can easily and quickly be done after the nuts have dried in the sun.

The Kansas Way of Wintering Cabbages.—To those who have trouble in storing the cabbage crop, Dr. A. G. Chase, Leavenworth Co., Kans., desires to give a pointer for their benefit. Dig a trench three feet wide and six inches deep, long enough to hold the crop. Take the cabbage up with a spade, leaving as much soil upon the roots as possible, and set them in the trench as they grew, putting them as close together as they will stand. As each row across the trench is filled, cover root and stalk nearly to the head with fine, moist earth, and proceed until the crop is thus stored. Then cover with straw or hay six inches above the heads, and add to it, as the weather gets colder, until you have about two feet of straw over the heads, and lay some poles to keep from blowing off; or fodder corn may be used for a part of the top covering, and is not easily displaced. As the cabbage is used, remove just enough to cut a head out and leave the stalk standing. In early spring there will be early cabbage "greens" in abundance, and the late cabbage crop will keep in better shape than if stored in any other way.

Season for Planting Strawberries.—E. C. Powell, Tompkins Co., N. Y., writes us: "The best time to set strawberries is in the fall in moist soils that do not heave too badly. I have been looking up the opinions of our most prominent growers as expressed in their writings in the agricultural and horticultural press for the past four or five years, and find that a very large majority are in favor of fall planting—in October and November. The reason is, that plants become established by winter, and will start growing early in the spring; with a little mulch they will winter all right, and will produce a light crop of fruit the next season and a heavy one the following year.

Tobacco in Arkansas.—W. J. Patton, Washington Co., Ark., writes us: "I cleared and burned the brush on two acres of well-drained limestone land, broadcast fifteen wagon loads of fresh horse manure and eighteen loads of old oak ashes, procured near by from a defunct sawmill. I then grubbed and broke the land well, and planted Havana, White Burley, Sweet Orinoco, and Persian Muscatelle tobaccos, which have grown with tropical luxuriance, except the Burley, which is pale and weak. I have no worm-eaten tobacco, thanks to a couple of bug-catcher lamps and a pair of long-legged Brahma fowls."

Black-Red General Purpose Fowls.—J. B. B., Detroit, Mich., writes us: "I have a flock of Partridge Cochin hens, and I wish to buy a small bird to cross upon them. I desire to produce a medium sized fowl, as near as possible in color to the Partridge Cochin, and I wish one that will prove a good layer and be a fine fowl for the table, in other words I wish a black-red general purpose fowl." J. B. B. states his wants very accurately, and we recommend him to try a Brown Leghorn cockerel. He will get as the result of this cross very little change in coloring—the males will be almost identical, and the females will be very similar, though perhaps lose a little in penciling. The crossbred pullets will be excellent layers, plumper than the Cochins on the breast, and will prove very desirable general purpose fowls. By using an Indian Game male, handsomer pullets would be obtained than those from the Brown Leghorn male, as the Indian Game females are beautifully penciled, and the distinct penciling of the Partridge Cochins would be better preserved. The Indian Game cross would also give larger, heavier birds, and much better fowls for the table, but they would not be so prolific layers as the Brown Leghorn—Partridge Cochin crossbreds. Either cross would give beautiful fowls, but the one first mentioned would prove the most satisfactory for his purpose.

Keeping Meat.—John Cooper, Ness Co., Kansas: Meat preserved by smoking, without first being salted, is hardened a little, but retains all its nutritive elements. It acquires a peculiar taste from the creosote of the smoke or some allied substance. If meat is steamed enough to coagulate its albumen, and then quickly dried in heated air, it will be reduced four-fifths in bulk, and retain its good quality. Both vinegar and sugar may be used to preserve meats, the vinegar decalcifying the bones so that they are easily crushed. Sweet oil is also used, as in the popular sardines. Corned beef, cooked until the bones are easily removed, and then pressed into solid masses in cans of various sizes, is now very extensively used. Roast beef and lunch tongues, put up in cans, are also for sale. Poultry and game are preserved with gravy in tin cans, all ready for immediate use. Years ago patents were obtained for preserving fresh meats by coatings of paraffin, which cracked in hardening; and by carbonizing the surface by dipping into boiling fat. Experience with both these methods was not satisfactory.

Ferns as House Plants.—E. Brenton, Queens Co., N. Y.: Ferns are easy to manage and make desirable plants for the window garden, particularly where there is but little sun. Starting with ferns that have about completed their growth, they can be kept where the sun never reaches them, and the soil must be kept wet but never sodden; they will then remain objects of beauty for several months. They will show by the fading of the fronds, when rest is required. Then gradually withhold water, and, when the plants become unsightly, put them aside; a cool cellar would be a suitable place. Water just sufficient to keep them from drying up. About the first of April they will begin to show signs of life and growth, when they should be re-potted. Carefully take the plant from the pot, and reduce the size of the ball of earth by removing all the loose earth above and around the ball, and put back in the same pot, unless the ball of roots is very large, in which case a pot one size larger should be used. After potting, set in a pail of water up to the rim, and let it remain for several hours, in order that the mass of roots may become thoroughly moistened.

Good Lye for Soap.—G. Thompson, Cloud Co., Kansas: Cans of concentrated lye may be opened with mittened hands and a sharp screw-driver. Two pounds of lye and ten pounds of grease may be placed in a large iron boiler, which as soon as made may be emptied into the washtubs, and another batch made in the same way. Thus sixty pounds of grease and twelve pounds of lye may be made up in the one iron boiler in eight hours, resulting in two large tubs and the iron boiler full of soap, which should be turned out when cool, two days afterwards, and cut up in blocks about three inches each way, and stored away for a year, in order that it may become dry. A year's supply on hand insures a dry, hard soap, which improves with age. Hard soap is so cheaply made that farmers may use it very freely.

Road Dust for the Poultry House.—L. Pierce, Maur Co., O.: Now is a good time to lay in a supply of road dust. The fine, dry dust on the tops of the streets, such a nuisance to the traveler, is a blessing to the poultry man. It is an admirable absorbent, and used under the roosts and mixed with the droppings, it preserves the volatile properties of the hen manure, increasing, in a very material degree, the fertilizers made by the flock. Used in the dust bath, it penetrates the feathers of the fowls and stops up the air passages of the parasites that dwell on the bodies and hide among the feathers of the hens, thus promoting their comfort and health. Used on the floors and about the house, it assists in destroying the little mites that hide in the cracks and corners of the building, removes noxious odors and exhalations, and makes the poultry house a healthy home for its feathered occupants instead of a disease breeding prison. It pays to gather and use road dust.

Causes of a Short Berry Crop.—M. A. Thayer, Monroe Co., Wis., reports that while staminate varieties of strawberries have, generally, given a fair yield the past season, pistillates have been deformed, irregular and small, resulting from lack of fertilization. This general want of fertilization he attributes to impotency or lack of vigor of the pollen, aggravated in some localities by unfavorable weather, and in others by the scarcity of the honey bee and its valuable work of distributing pollen. This lack of pollenization appears to extend over a wide area, and includes many varieties of fruit. Severe local drouths and hot winds have reduced productions. Strong pollenizers should be freely used. Pistillates are usually shallow rooted, with small foliage, make plants rapidly, and will not stand severe drouth if allowed to grow too thickly in the matted row. They should be heavily mulched, to preserve the soil moisture.

Durable Roads.—L. A. Brackett, Herkimer Co., N. Y., writes us: "In this township, 40 or more years ago, a piece of clay and loam road was covered with broken slate, and is in good condition now. A few years afterwards a piece of road with equally as bad soil for road-making was paved with hard cobble stones from adjacent fields and skillfully placed. In point of labor, the last was the cheaper road and keeps in fine condition, no repairs being needed yet. The largest-sized stones were laid in a straight line for the middle of the road bed, and the next size smaller on each side, the stones gradually decreasing in size until the outside of the road bed was reached. All the stones were set endwise, and the bottom stones were set with the large end down. The tops of these were filled in by turning small ends down, fitting in like a wedge. It required skill to make a neat, durable surface. The stone can be drawn better in the winter if at a distance. The best way to work a very sandy road is to cover the road with clay, which, mixed with the sand, improves it very much."

Willows on Poor Soil.—J. Spazetta, Union Co., New Jersey: Owing to its long roots, the willow does not usually require any other manuring than what is furnished by the yearly fall of the leaves. In close plantations, however, and especially on poor, sandy soil, the application of manure may be required to secure continuous good crops of from four to five tons of osiers per acre. The best manure is compost, mixed with ashes, free of weed seeds and not too rich. Poor, sandy plantations are much benefited by a yearly manuring with stable manure, which should be thinly spread over the field after the crop is harvested. The cheapest and most effective way to enrich willow plantations is afforded where a temporary overflow of running water can be had. Such plantations, mostly situated along the banks of rivers, need no other manure than what is given them every year in the sediments left after the floods have receded. Even where the plantation is not so favorably located, an occasional drenching, by artificially leading a stream of water through the rows of willows, will often save the expense of manuring, provided there are means secured to let the water run off at will, for the accumulation of stagnant water in the subsoil would entirely ruin the roots of the willows.

Barn for Curing Tobacco.—W. J. Patton, Washington Co., Ark.: Tobacco can be cured in a large, dry, hay barn, provided the cracks between the boards do not admit drafts of air. The space between the sills and the ground should be closed. Drying frames should be built from floor to roof, on which to place the poles or laths holding the tobacco. The cheapest and easiest method is to pierce the stems and slip them over the lath or pole, so that one plant will not touch another. Twine may also be used to tie the plants to the pole. The tobacco is ripe when the leaves snap after being doubled and pressed between the fingers. When the weather is dry, the tobacco becomes brittle unless ventilated at night or during rains, by opening the wide doors. In heavy drying winds, close the barn as tightly as possible.

When the stems show no sap on pinching, the almost dry leaves may be stripped from the stalk, the top and bottom and ragged leaves being put together for fillers, the leaves with some holes for binders, and the best leaves for wrappers.

Strength of Animals.—A. S. Haley, Queens Co., N. Y.: Insects are generally stronger than other animals. A cockchafer can draw a load 14 times greater than his body; a bee, 20 times; an ant, 30. The thoroughbred horse of 1,000 pounds weight can draw more than a plug of 1,200 pounds, and can go twice the distance on the road, day in and day out, with a relative burden. Small men of sanguine temperament are better soldiers than large, slow, phlegmatic men, and the more intelligent the man, the better for every pursuit of life. Resolution, snap, will-power, either in men or animals, enable them to do and endure much.

Storing Early Apples.—C. T. Miller, Columbia Co., N. Y.: Early winter apples, or those that mature early on the trees, like the Greenings, should be gathered and placed in a cool, well-ventilated building as soon as picked, there to remain until cold weather, and then be carefully assorted and placed in the cellar. In most sections they can be safely left until the middle of November, or until after several hard freezes, as it should be from ten to fifteen degrees warmer in the buildings than under the leafless trees, and, should an unusual cold snap occur, a covering of canvas or blankets will protect them sufficiently. Of course the second handling makes extra work, but the fruit will go into the cellar drier and in better condition, and the loss will not be nearly as heavy. The average cellar is too warm for the proper preservation of apples until early winter. Those that are rejected at the second handling may be evaporated or otherwise used.

Keeping Eggs.—C. Peters, Buck's Co., Pa.: The result of experiments at the New York Experiment station was that eggs packed in salt during March and April, after painting with vaseline, to which salicylic acid had been added, kept well four or five months in a barn cellar at a temperature of about 66° F. Each box was turned over once every two days. Fertile and unfertile eggs showed no difference in keeping qualities, nor was there noticed any difference in the keeping quality as dependent on breed or feed. The limeing process of preservation had been tried, but the quality of the eggs with it was inferior to those kept in salt.

Treatment of Amaryllis.—K. M. Preston, New York: The amaryllis, has been much improved of late by an English hybridist. His great success in cultivating this plant is just the point where amateurs, and many florists, make their mistake—in watering. He withholds water for six weeks after potting, and also from August to early in February, but gives plenty of it when the plant is growing. Rich soil is necessary, with a liberal proportion of rotted cow manure, and sharp, coarse sand to keep the soil porous.

Adulterating Newton Pippins.—A correspondent in England writes us that some unprincipled persons are selling barrels of an apple very like the Newton Pippin in size and color, but with a very poor flavor, which is entirely different from the excellent tasting Newton Pippins. The substituted apple is somewhat larger and smoother looking than the real Newton. American growers, for their own interest, should effectively discountenance such a fraud as this, which substitutes an inferior fruit of not one-fifth the value of Newton. The latter have been quite scarce last season, and even unsorted barrels have commanded a high price in British markets. Horticulturists may rest assured that such a fraudulent practice would soon injure the sale of American apples in the British markets.

Graperies for Forcing Vegetables. — R. M. Smith, Westchester Co., N. Y.: Graperies may often be utilized in winter and early spring to supply the family with green vegetables. There is necessarily much space in a grapery which is not utilized by the grapes, and which could be used to advantage in forcing vegetables. A large bench in the center and unoccupied portion of the house, might be constructed two to four feet high, and of dimensions proportionate to the size of the house, so as to leave plenty of room at the sides and ends for passage and work at the vines. This bench will aid materially in thinning and picking the fruit, training, trimming and cleaning the vines. Lettuce, radishes, beets, beans, carrots, cress, spinach and cauliflower do best in a moderate temperature, which can be easily maintained in warm graperies. Fifty-five degrees in the daytime, and ten degrees lower at night, will suit all these vegetables nicely, and not injure the vines. Tomatoes require too high a temperature to be available for such a place. These crops may be started in the fall and at intervals during the winter, and will be harvested and out of the way before out-of-door vegetables come on, and also before the foliage of the vines becomes too dense to interfere with their growth. The graperies might also be used for growing and storing plants like azaleas, rhododendrons, Dutch bulbs, and others, which require a cool temperature.

Food Preservation.—J. Spence, Sullivan Co., New York: The preservation of animal foods has been a subject of much study and many experiments. A variety of methods have obtained favor. Drying will prove successful if the pieces are not too large to be well dried through before the center of each is changed by decay. Large pieces are soon tainted in summer heat. Some varieties of fish and meats are first salted, and then dried; or are partially salted and then smoked. It is quite common to add a little niter to the salt so used; and one method of preparing hams for smoking is to apply salt and sugar to them without making a brine with water. Liebig found that flesh rubbed and sprinkled with salt formed a brine equal to one-third of the fluid in the raw meat. This brine contains a large portion of the soluble substances essential to its nutritive value. He compared the loss in nutrition in salted meat to that from making a good soup.

Getting Rid of Rats.—R. H. Lodge, Summit Co., Ohio, writes us: "I have succeeded in ridding my premises of a colony of rats. On the barn floor I placed a 36-gallon kettle filled half full of rye. A plank six feet long led from the floor to the top of the kettle. The rye was left in the kettle for about a fortnight, until the rats had become thoroughly familiar with the kettle, and were making it the headquarters for their nightly revels with seeming confidence that no harm was intended, when, very treacherously, one evening, water was substituted for the grain, and a half-inch of chaff from the barn floor concealed the water. The result was that 21 drowned rats were forked out the first morning and 62 within a week, and after that no rats were seen for a year."

Muscular Powers of Animals. — John Hill, Essex Co., N. J.: The horse is capable of moving 67 per cent. of his own weight in his daily work; the ox about 70; the mule 75; the ass 80; the goat can draw more than his own weight; the lion has been known to drag a slain ox a considerable distance. A fox gallops away with the largest goose at a rapid pace. Monkeys are wonderfully strong for their size. A turtle has been known to move with a man standing on its back six times its weight. Dogs are powerful in proportion to their weight. It is a common thing to see a medium sized dog dragging a cart and load several times his own weight. The little fox-terrier has been known to drag a fox nearly twice his own weight out of a hole in the ground. Birds are very strong. Eagles carry away young lambs and kids three times their weight. Hawks are still stronger.

Palms.—J. C. Carpenter, Oneida Co., N. Y.: When in active growth, palms should be watered freely. In summer they should be given a warm place outdoors, but shaded from the sun during the hottest part of the day. When at rest during the winter they may be kept in a window in the house. But little water should be given during that season.

Tent Caterpillars.—Subscriber, Bergen Co., N. J.: The sudden and almost total disappearance of the apple tree tent caterpillars (*Cusiocampa americana*) has, no doubt, been a surprise to yourself and neighbors. Last season they were so abundant and destructive that few orchards in the northern part of New Jersey escaped complete defoliation, and large numbers of trees died in consequence, but in these same orchards scarcely a tent can be found the present season. What caused the sudden disappearance of the pests we are unable to determine, but may safely presume that it is due to an attack upon the caterpillars by some parasite in the form of an insect or fungus disease, for the same thing has occurred many times before. The few caterpillars that have escaped will multiply, and a few seasons hence they will be as abundant as ever, then their natural enemies will appear and cut down their numbers again, but, unfortunately for the fruit grower, there are always enough left to prevent a total annihilation of the species.

Condensed Milk.—W. W. Meach, Fairfax Co., Va.: Superheated, or condensed milk is prepared in the same factories that evaporate milk. The milk to be condensed is subjected to a high temperature before it is put in the vacuum pan, by blowing in free steam. During the process it is carried up to 190° or 200° F. The degree of heat is tested by a long thermometer dipped in the milk. The factories use a copper evaporator, with a coil of copper pipe inside, at the bottom, for heating. The vacuum is maintained by pumps and a supply of cold water. When three-fourths of the milk is thus evaporated, cooling is hastened by setting cans in a trough of cold water, and by stirring mechanically with paddles attached to shafts above. Sugar is added, not only to increase its sweetness, but to improve its keeping quality after the cans are opened for use. Sterilizing milk is done by simply heating it long enough, from 140° to 170° Fahrenheit, to destroy the vitality of all sorts of germs. Prof. Conn of Connecticut recommends steaming milk to kill the injurious bacteria.

Feeding Wheat to Stock.—W. H. Ruffner, Rockbridge Co., Va.: Wheat if fed properly is a healthful feed for stock, and if you can buy it as cheaply as corn, it will form a profitable and more nitrogenous ration for young animals. It is best chopped alone, or with other grain, and fed in the same way as wheat bran, either dry, or else salted and mixed with water, or soaked in water for half a day. If fed whole it should always be soaked, or boiled, or steamed, until the grains burst. In cold weather it would seem reasonable that this soaked wheat, cold or icy, would not give as good results as the same fed warm, but experiments in Canada, show that pigs thrive equally well on either warm or cold soaked whole wheat. The wheat-fed pork is better flavored than corn-fed. Soaked whole wheat is a better food for horses than corn, and if it be mixed, with oats and fed whole or chopped, the combination is an ideal grain ration. As the bran and middlings contain much stock food it is generally more profitable to grind wheat into flour.

Fuchsia Culture.—Miss Mac Claren, Suffolk Co., L. I.: From the time the young plants are potted, which is usually in January, they should be kept constantly growing in a temperature of from 80 to 90 degrees in the day time, and not below 60 degrees at night. Water the plants carefully; that is, avoid extremes, so that they may never suffer a check in their growth. Shift into larger pots as soon as those in which they are growing are filled with roots. Under this treatment the plants will be large, and in full bloom about June first. The plants should be placed in a partly shaded place where they are protected from the midday sun. If the pots are sunk into the soil up to the rim, and the soil kept moist, the plants will bloom during the entire summer season. They should be brought into the house before freezing weather and kept in a room free from frost. Water should gradually be withheld, without allowing the soil to become dust dry. Repot and start into growth about the first of February.

Wild Meadow Garlic.—John Bierhaus, Knox Co., Ind.: The bulbs you send are those of the wild meadow garlic (*Allium canadense*) a pestiferous weed, bearing hard, white bulbs at the base, and umbels of either rose-colored flowers or a large head of bulbs in their place. The scape or flower stalk has only a few leaves at the base, as in most of the true wild onions, but this bulb-bearing at the top makes this garlic a great nuisance, especially on wheat fields, as you observe, for these little terminal bulblets are mainly about the size of a kernel of wheat and will readily pass through the sieves with this grain. Furthermore, these bulblets will withstand almost any amount of both freezing and drying and afterwards grow, when they drop into a favorable position. Long continued clean cultivation of land is the only way we know of getting rid of this odorous pest.

THE CROPS OF THE UNITED STATES.

Their August Condition and the Acreage and Probable Yield of the Staple Crops.

[Compiled by the AMERICAN AGRICULTURIST from the Returns of the United States Department of Agriculture.]

The main facts about the crops of 1893 are given by States and for the country at large in the table below. The condition of each crop on the first of August is given on the basis of 100 as representing a full stand in every respect. The acreage of each crop is also returned, 100 in this case representing the breadth devoted to the crop last year (1892). The area of the various crops last year has been stated in our monthly reviews of the crop situation, to which the reader is referred, while the table below may with advantage be compared with a similar exhibit in the AMERICAN AGRICULTURIST for August, 1892, and October, 1891. It should be added that the indications as to yield contained in the detailed discussion below of the various crops is merely indicative of what the harvest will be. The actual outturn may be more or less, according as the weather from August 1st until the crops are safely harvested is favorable or unfavorable.

STATES.	CORN.		WHEAT. Winter.		WHEAT. Spring.		RYE.		OATS.		BARLEY.		POTAT'S		TOBACCO		COTTON.		CLOVER.		TIMOTHY.	PASTURE.	APPLES.	GRAPES.	PEACHES.	BEANS.		WOOL.	BUCK-WHEAT.	
	Condition.	Acreage.	Condition.	Acreage.	Condition.	Acreage.	Condition.	Acreage.	Condition.	Acreage.	Condition.	Acreage.	Condition.	Acreage.	Condition.	Acreage.	Condition.	Acreage.	Condition.	Acreage.	Condition.	Condition.	Condition.	Condition.	Condition.	Condition.	Acreage.	Amt. sh'd.	Condition.	Acreage.
Maine	91	105	.....	.....	98	103	100	98	97	100	96	100	98	102	.....	.....	.....	.....	81	99	90	89	58	98	.....	102	101	98	100	91
New Hampshire	95	100	84	100	90	100	96	100	92	102	94	100	91	101	.....	.....	.....	.....	87	99	100	91	62	97	82	98	99	94	100	100
Vermont	97	102	98	96	93	94	93	100	95	102	95	100	88	98	.....	.....	.....	.....	92	101	93	92	61	91	.....	99	102	95	93	93
Massachusetts	93	100	.....	.....	.....	.....	98	100	97	100	98	100	87	103	87	105	.....	.....	90	100	96	87	61	93	82	98	99	98	94	100
Rhode Island	94	98	.....	.....	.....	.....	98	.....	97	100	96	100	91	106	.....	.....	.....	.....	96	96	96	89	72	80	78	95	98	100	.....	.....
Connecticut	94	100	98	.....	.....	.....	98	99	94	97	95	.....	91	105	99	105	.....	.....	93	101	85	86	75	96	100	100	100	95	93	100
New York	92	98	86	95	94	79	96	99	86	89	77	87	90	98	91	88	.....	.....	94	98	96	84	51	92	74	96	100	98	88	100
New Jersey	83	96	101	100	.....	.....	98	100	71	92	.....	.....	69	99	.....	.....	.....	.....	78	104	67	69	71	91	93	94	95	100	97	98
Pennsylvania	81	100	94	99	91	89	95	96	86	98	78	97	84	102	98	100	.....	.....	79	97	77	77	57	91	75	94	96	92	93	96
Delaware	90	100	105	105	.....	.....	100	100	97	95	.....	.....	91	95	.....	.....	.....	.....	88	93	95	78	95	100	93	100	100	105	95	100
Maryland	86	99	94	94	.....	.....	96	95	93	95	98	100	79	101	90	103	.....	.....	74	93	74	68	78	91	77	97	99	99	83	99
Virginia	90	100	98	100	.....	.....	96	95	104	98	82	100	94	98	82	97	88	87	74	93	83	81	77	84	65	95	95	97	77	97
North Carolina	91	100	100	102	.....	.....	100	102	.....	97	.....	.....	96	95	82	90	84	104	89	94	94	90	73	89	81	99	101	93	78	78
South Carolina	75	102	93	101	.....	.....	97	100	66	95	.....	100	92	100	.....	.....	75	104	89	105	80	79	69	88	61	102	100	100	.....	.....
Georgia	88	103	99	111	.....	.....	101	102	93	105	97	.....	95	100	.....	.....	83	102	88	99	86	90	65	87	58	100	103	97	100	100
Florida	89	103	.....	.....	.....	.....	100	.....	102	108	.....	.....	100	98	.....	.....	92	109	97	.....	.....	102	80	100	81	99	99	101	.....	.....
Alabama	74	98	95	108	.....	.....	100	100	95	103	.....	98	96	99	.....	.....	79	100	88	102	83	82	58	83	52	96	99	96	.....	.....
Mississippi	75	100	105	98	.....	.....	98	95	86	99	.....	100	96	103	.....	.....	81	98	89	103	68	90	65	79	63	98	102	99	.....	.....
Louisiana	92	103	.....	.....	.....	.....	.....	.....	90	100	.....	.....	103	103	.....	.....	89	101	103	100	102	97	78	88	89	100	100	99	.....	.....
Texas	75	101	84	100	.....	.....	82	101	67	99	.....	92	94	97	.....	.....	72	102	64	103	79	70	75	85	70	90	100	97	.....	.....
Arkansas	87	100	103	103	98	.....	100	92	86	98	.....	.....	98	101	85	100	89	93	95	107	96	97	71	73	74	95	102	98	.....	.....
Tennessee	86	100	93	90	.....	.....	93	89	95	96	95	83	90	100	86	105	83	95	91	93	94	85	53	64	60	96	99	97	93	88
West Virginia	78	102	95	99	95	.....	95	100	99	100	.....	.....	86	110	57	97	.....	.....	84	93	80	74	45	78	54	97	96	97	90	99
Kentucky	86	98	92	95	.....	.....	98	93	100	98	92	85	93	100	77	99	.....	.....	94	97	94	88	42	73	51	97	98	98	.....	.....
Ohio	85	99	93	96	90	.....	86	91	90	95	89	93	81	100	83	96	.....	.....	93	96	85	79	13	87	43	95	96	96	88	92
Michigan	94	99	79	93	72	81	86	93	85	92	80	88	91	104	.....	.....	.....	.....	93	100	99	91	46	92	74	95	105	97	85	92
Indiana	79	103	83	94	64	.....	92	88	95	105	96	71	75	102	78	105	.....	105	92	99	91	69	15	86	32	97	98	100	75	81
Illinois	81	105	66	76	84	89	80	83	83	108	88	73	80	106	92	96	.....	96	79	86	89	73	24	84	47	91	98	99	71	73
Wisconsin	98	102	98	98	70	83	90	100	82	100	78	94	85	105	91	99	.....	99	94	103	96	76	57	88	.....	96	102	98	78	80
Minnesota	101	105	69	86	67	90	79	96	80	106	83	105	74	101	.....	.....	.....	.....	87	100	91	78	58	89	.....	95	96	103	89	99
Iowa	102	105	94	95	87	93	95	91	75	102	90	98	93	105	.....	.....	.....	.....	85	96	96	91	48	85	46	99	101	106	94	91
Missouri	95	103	77	84	90	.....	88	92	81	102	83	96	98	102	92	106	86	106	82	94	88	97	26	77	41	97	99	98	97	100
Kansas	82	110	46	61	25	94	33	86	51	102	35	114	77	95	.....	.....	.....	.....	72	100	87	78	23	75	44	70	85	98	89	100
Nebraska	84	112	49	100	58	100	61	95	50	99	68	85	61	101	.....	.....	.....	.....	57	93	72	73	40	77	62	83	93	95	81	95
South Dakota	93	109	.....	.....	63	95	72	83	63	109	70	108	85	102	.....	.....	.....	.....	73	109	66	80	83	101	.....	92	105	109	100	100
North Dakota	92	120	.....	.....	66	96	77	100	75	104	78	105	82	102	.....	.....	.....	.....	95	100	84	82	.....	.....	.....	96	103	102	100	100
Montana	97	102	100	110	92	103	.....	.....	94	104	90	103	94	104	.....	.....	.....	.....	86	109	92	85	93	.....	.....	100	100	107	.....	.....
Wyoming	90	100	.....	.....	90	88	100	.....	85	109	.....	.....	85	105	.....	.....	.....	.....	92	105	89	73	90	.....	.....	110	100	110	.....	.....
Colorado	62	99	92	115	66	102	66	100	72	106	74	100	78	99	.....	.....	.....	.....	82	104	70	68	69	81	88	93	93	105	85	.....
New Mexico	67	86	.....	.....	80	106	.....	.....	80	100	88	99	.....	93	.....	.....	.....	.....	90	108	.....	68	73	100	73	98	99	104	.....	.....
Arizona	93	100	89	100	78	100	100	.....	76	.....	84	100	83	85	.....	.....	.....	.....	95	.....	.....	58	7—	95	58	100	100	100	.....	.....
Utah	86	100	96	97	89	103	95	104	90	102	92	95	96	92	.....	.....	.....	.....	85	102	90	83	78	87	83	90	102	95	.....	.....
Nevada	80	.....	100	.....	91	92	.....	.....	100	.....	83	91	88	105	.....	.....	.....	.....	98	100	93	90	85	.....	60	75	100	123	.....	.....
Idaho	100	105	88	101	81	102	100	.....	77	90	92	97	88	94	.....	.....	.....	.....	92	100	86	95	87	100	96	91	100	115	.....	.....
Washington	95	82	95	86	97	103	94	100	102	94	103	92	91	99	.....	.....	.....	.....	100	104	96	103	64	93	64	82	97	100	.....	.....
Oregon	80	98	96	104	81	96	97	100	85	99	88	95	94	99	.....	.....	.....	.....	100	105	98	96	85	95	88	90	97	104	100	100
California	98	100	80	86	81	90	97	100	88	87	92	90	94	97	.....	.....	.....	.....	93	104	99	92	93	98	82	95	101	95	100	.....
U. S. Av. Aug. '93	87	103	78	88	67	94	86	94	78	101	85	95	86	101	88	99	80	99	86	98	90	82	63	86	67	95	99	.....	89	96
U. S., Aug. '92	83	96	90	100	87	100	93	99	86	99	91	102	86	94	89	97	82	97	92	99	93	92	65	86	58	94	99	.....	92	101
U. S., 1891	91	108	96	112	96	103	94	102	90	98	94	107	97	102	86	103	89	98	88	100	91	92	78	87	80	95	100	.....	101	97
U. S., 1890	73	101	76	91	83	104	93	99	70	99	82	98	77	100	69	104	89	102	91	101	94	82	54	78	33	95	99	.....	102	90
U. S., 1889	95	.....	93	.....	81	.....	95	....	92	.....	91	.....	94	.....	84	.....	89	....	96	.....	95	97	78	86	85	72	.....	99	95	.....

THE CROPS OF THE WORLD.

Cotton in the United States.

Cotton is the Lowest in Condition ever reported on August 1st by the Department of Agriculture, declining two points since July 1st, and standing at 80.4, against 100 as a full stand. The present low condition is the consequence of an excess of rain in the early part of the season followed by hot, dry weather during the month of July. Rust is reported as a cause of injury to the crop in the States of Alabama and Mississippi, and the boll-worm and caterpillar have damaged the crop more or less throughout the States of Alabama, Louisiana, Texas and Arkansas. Shedding is also reported as occurring in some localities. Between August 1st and 10th the drouth has been broken and rain has visited the cotton belt, excepting parts of Tennessee, Mississippi and Texas, where it is badly needed. In some portions of Mississippi and Alabama too much rain for the good of cotton is announced. It is too early yet (August 15th) to forecast the yield, which depends upon the weather of the next three months.

The acreage of cotton shows almost as great a breadth as last year. We accept the estimates of the *Financial Chronicle* for the acres under cotton last year, these having been verified from census returns. Applying to this the Department's estimates of area and condition for the new crop, the August indications point to the following results:

States.	Acres, 1893.	Acres, 1892.	Condition. 1893.	Condition. 1892.
North Carolina	934,000	899,000	84	82
South Carolina	1,879,000	1,807,000	75	83
Georgia	3,067,000	3,007,000	83	84
Florida	194,000	178,000	92	81
Tennessee	618,000	651,000	83	79
Arkansas	1,278,000	1,374,000	89	75
Alabama	2,594,000	2,594,000	79	83
Mississippi	2,620,000	2,673,000	81	80
Louisiana	1,102,000	1,091,000	89	83
Texas, etc.	3,798,000	3,998,000	82	84
Total	18,084,000	18,362,000	81	82

Last year's crop is generally placed at under 7,000,000 bales, grown on 18,362,000 acres, when August condition was 82.3. In 1891, with August condition at 89, we had the great crop of 9,039,000 bales on 19,352,000 acres, and in 1890, with August condition at just about the same point, the crop made 8,655,000 bales on 19,518,000 acres. With the land under cotton about the same if not less than last year and condition about the same, the indications in August were for a crop of some 7,500,000 bales, which may be increased or diminished according to the season.

Although the American cotton that had come in sight from September 1st up to August 4th was 2,476,000 bales less than during the like period of last year, the world's visible supply of cotton on the latter date was only 400,000 bales less than a year ago, and exceeded by 1,627,000 bales the visible supply two years ago. Yet the price of middling upland at New York is eight cents per pound, or just about its value two years ago, compared to 12 cents in August, 1890, when the visible supply was only half what it is to-day and the crop promising to be much larger than it now is. If, therefore, the yield proves to be only about the same as last year, an improved market may be expected.

The Fruit Crops.

An Abundant Crop of Grapes is promised at this date. The percentages of July have been generally well maintained. Dry weather has tended to check the spread of rot and mildew. The crop promises to be fully as heavy as last year, unless reduced by August drouth. With more peaches than last season, the prices for the bulk of early grapes may be affected, but the shortage in apples means an active demand at good prices for grapes later in the fall.

The Atlantic Peach Belt has felt the dry spell. Complaints are frequent of premature ripening. Conditions still point to a large crop in this section, however, and local showers have benefited some localities. Connecticut has a full crop, and August condition in New York shows three-fourths of a full yield compared to less than half a crop in 1892; New Jersey is 40 points above last year, Delaware 45, and Maryland 47 better. A further decline is noted in Michigan, where fruit has

(*Continued on Page 534.*)

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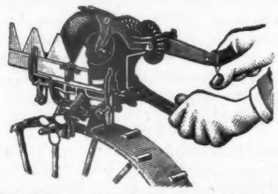

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THE CROPS OF THE WORLD.

(*Continued from Page* 532.)

dropped severely and condition is only four points better than last August. California has a good crop of excellent quality.

The Surplus of Apples for market and export will be exceedingly small from present indications, though a moist spell from August 15 to the middle of September, followed by another month of mild weather, would develop late fruit beyond what now seems possible. In the Central States, the crop is practically a failure, Michigan's great commercial orchards are rated nine points less than in August last, Missouri may have only half as much as her last short crop, but the Arkansas apple belt has been favored and indicates a good yield. The serious shortage in New England is reflected in an August condition averaging only 61 per cent. of a full stand, compared to 73 last season and 76 at the like date in 1891. The immense apple orchards of New York promises just half a full stand, against 68 per cent. last year and 75 per cent. at the like period two years ago.

Our Great Cereal Staples.

The Shortage in Wheat is confirmed by the August report of the United States Department of Agriculture. There were 2,565,000 less acres devoted to this cereal than last year, and the bulk of the decrease was in the nine surplus wheat States, which usually furnish the major part of our export. The acres under wheat this season and last year are compared in the table below, with the present prospect of yield per acre and total crop, this last and the acres being stated in round thousands (last three ciphers or hundreds omitted):

	Acres in W ht		*Bu. Acr.*		*Tot. Cps. Bu.*	
	1893.	1892.	'93.	'92	1893.	1892.
New England..	15	16	16	16	241	264
New York.....	451	519	14	16	7,177	8,405
Pennsylvania..	1,271	1,324	14	14	18,177	19,331
The South.....	5,627	5,571	11	19	52,327	56,723
Nebraska.....	1,254	1,254	14	9	10,695	15,670
Ohio	2,686	2,796	12	9	33,037	38,022
Michigan	1,525	1,623	14	12	17,542	23,854
Indiana	2,550	2,713	13	13	33,278	39,885
Illinois.....	1,471	1,751	14	12	17,946	28,370
Minnesota	3,126	3,553	13	10	29,700	41,210
Missouri.....	1,669	1,987	13	13	22,362	24,834
Kansas.....	3,501	4,071	16	15	54,262	70,831
South Dakota .	2,414	2,541	13	9	20,280	31,767
North Dakota.	2,754	2,869	13	10	27,265	34,998
N. and S. West,	1,766	1,810	15	16	28,074	23,844
Pacific.....	3,910	4,158	16	18	70,752	57,941
Total, U. S.....	35,989	38,554	13	12	443,025	515,949
9 Surplus Sta s	21,696	23,903	13	12	255,671	333,671

There was a considerable falling off in the condition of spring wheat in July, amounting to something over seven points, the average condition being 67, as against 74.1 for the month of July. This decline is the result of the too-high temperature and deficient rainfall in the spring wheat States. The drouth has prevailed over extensive areas, and has done much damage. Much injury has also been done to this crop by the chinch bug and rust in several of the States.

The yield per acre cannot be accurately known until threshing is completed, but the indications point to a total of less than 450,000,000 bushels, against 516,000,000 last year. More notable still is the fact that the surplus wheat States are likely to have only about 256,000,000 bushels compared to 334,000,000 last year and 381,000,000 two years ago. Even assuming that the 40 million more bushels of old wheat in sight on August 1st than at the same date last year was all from the wheat surplus States, adding this to their prospective outcome for the present season still leaves the supply of the surplus States as 40 million bushels less than last year. This is a decrease for the surplus States of 12 per cent. compared to last year.

It is quite possible that more old wheat is in farmers' hands than twelve months ago, owing to the low prices. If we allow that 17 million bushels more can be marketed from this reserve stock of old wheat than was shipped last season, this, added to the 40 millions excess of supplies in sight, makes a possible total of 57 million bushels more old wheat available than was the case last fall. But even this liberal allowance, added to the indicated new crop of 443 million bushels, makes a total of only 500,000,000 bushels. This is 117 millions less than the average of the two previons crops. It should be stated also that other interpretations of the August report make this year's crop from 383 to 425 million bushels. The AMERICAN AGRICULTURIST's present view is, therefore, likely to be criticised as more than liberal.

But with the likelihood of being called upon to furnish England and Europe with from 150 to 200 million bushels of wheat by July 1, 1894, even our estimation of present prospects makes it difficult to see how we can spare this quantity without curtailing our own consumption. Out of 58 million bushels produced last year, the Pacific coast exported abroad 34 millions, and had two milllions more in sight August 1st than a year ago. Out of a product in 1891 of 62 million bushels, the same section exported 38 million bushels of wheat (including flour as wheat) to supply famine-stricken Europe. With a crop of 70 million bushels, therefore, the Pacific coast may be ablé to export 42 millions, and by eating less than usual, may increase this to exports of 45,000,000 bushels.

The rest of the country furnished 158,000,000 bushels for export out of a total production of 558,000,000 bushels last year, leaving 400 millions for home consumption. But the present season the country outside of the Pacific States has apparently only 372,275,000 bushels in the new crop, and 37,379,000 more old in sight August 1st than last year. Allowing an excess of 16,000,000 bushels of old still in farmers' hands, makes the aggregate supply east of the Rockies only 425,000,000 bushels for consumption and export. Should threshing returns prove this estimate to be close to the facts, it may be difficult to spare 55,000,000 bushels for export.

This, with 45 millions from the Pacific coast, indicates a possible export surplus of 100,000,000 bushels, with every indication now that Europe will need much more than this.

The present low prices of wheat, in the face of the crop outlook, makes an exhibit of past crops specially interesting and timely. Hence the following table showing total crops, the amounts of each that were exported, the balance that was used for domestic consumption, the average value per bushel of wheat at the farm in December, and the average yield per acre.

Years.	*In Round Millions Bu.*			*Value*	*Yield*
	Crop	E'ports	Used.	*per Bu.*	*Pr Acr.*
Av. 1870-79...	312	74	238	$1.05	12
" 1880-89...	450	134	316	.83	12
" 1890-92...	542	174	368	.77	13
1883.....	421	111	310	.91	11
1884.....	513	133	380	.64	13
1885.....	357	95	262	.77	10
1886.....	457	154	303	.69	12
1887.....	456	120	336	.68	12
1888.....	415	89	326	.93	11
1389.....	490	109	381	.70	13
1890.....	399	106	293	.84	11
1891.....	612	225	387	.84	15
1892.....	616	192	424	.62	13
1893.....	*†500	†155	†345	†.60	†12

*Including 40,000,000 bushels extra in sight Aug. 1st and 17,000,000 excess in farmers' hands. †Estimated. The average consumption for the four past years was 365,000,000 bushels.

The Corn Crop has been growing on about 2,500,000 acres more than last year's breadth, the total acreage indicated by the United States Department of Agriculture returns being 72,869,000 acres. The acreage for this season and last year is roughly compared in the table below, which also gives the yield per acre last year and the yield for this season indicated by the August returns, and the total crop of 1892 with the August indications of the total yield this fall:

	Acres in Corn		*Bu. per Acre.*		*Millions of Bushels*	
	1893	1892	1893	1892	1893	1892
New England..	*a*176	*a*175	*b*37	*b*36	*c*6	*c*6
New York.....	517	528	34	33	17	17
Pennsylvania..	1,299	1,299	29	30	37	39
The South.....	22,063	21,954	15	16	330	327
Tennessee.....	3,018	3,018	19	20	57	61
Kentucky.....	2,804	2,953	22	23	63	68
Michigan.....	919	929	28	23	25	23
Others.....	2,992	2,977	22	22	65	75
Ohio.....	2,824	2,852	30	29	85	83
Indiana	3,633	3,527	29	28	106	103
Illinois.....	6,626	6,310	27	26	182	165
Iowa.....	7,449	7,075	34	28	253	200
Missouri.....	5,670	5,505	31	28	177	152
Kansas.....	6,547	5,952	23	23	153	145
Nebraska	6,241	5,573	30	29	186	157
Total U. S....	72,869	70,627	20	22	1,751	1,628
Surplus States.	38,989	36,793	22	23	1,145	1,008

a. The last three figures are omitted in the two columns of acres, but the totals include the omitted data.

b. Fractions of a bushel omitted here, but duly taken into account in the calculations.

c. Fractions of millions included in totals.

The seven corn surplus States last named in the table show a total of 38,989,000 acres this year, or 2,195,000 more than last season, but this increase still leaves the breadth devoted to this crop in these corn surplus States over 1,000,000 acres less than the great stretch of maize two years back. This year's increase of land under corn is mainly confined to these surplus States, but it will be observed that the enlargement of area is not as great in number of acres as has been represented.

Comparing the August returns with last year, and estimating the yield per acre as correspondingly more or less, the government report indicates a total crop of some 1,750,000,000 bushels, or only 123,000,000 more than last year. Of this total, the seven corn surplus States have an indicated crop of 1,145,000,000 bushels, compared to 1,008,000,000 last year and 1,316,000,000 in the great '91 crop—a decrease of 171,000,000 from that year, but an increase of 137,000,000 bushels over last year. But drouth has continued so generally in the corn belt since August 1st that, unless favorable weather at once occurs, the crop can hardly exceed 1,600,000,000 bushels, and may even drop to the size of the 1890 crop, when we harvested less corn than in any year for a decade, with but a single exception.

The previous corn crops of the United States, their average value in December, and the quantity of each crop in farmer's hands the following March, are factors of interest for comparison at the present juncture, as follows:

	Stated in Round Millions.				*Bush pr Ac*	*Val'e pr bu*
	Crop.	On H'd	Acr's	Val'e		
Av. 1870-79....	1,184	....	43	$504	27	43
" 1880-89....	1,703	....	70	669	24	39
" 1890-92....	1,726	676	73	744	24	43
1883.....	1,551	512	68	658	23	42
1884.....	1,796	675	70	641	26	36
1885.....	1,936	773	73	336	27	33
1886.....	1,665	603	76	610	22	37
1887.....	1,456	508	72	646	20	44
1888.....	1,987	787	76	678	26	34
1889.....	2,113	970	78	598	27	28
1890.....	1,490	542	72	754	21	51
1891.....	2,060	860	76	836	27	41
1892.....	1,629	627	71	642	23	39
1893*.....	1,600	600*	73	720	22	45

*Our preliminary estimate, based on conditions August 20th.

The August report shows that the condition of corn has declined a little over six points during the past month, the average for the entire breadth being 87, as against 93.2 for the month of July. This decline is due, in the main, to the drouth, which has proved both extensive and persistent. While in some parts of the country the continued dry weather has injured the crop beyond recovery, it is, nevertheless, true as to the larger portion of the area devoted thereto, that improvement is not only possible but, with a sufficient rainfall through the month of August, will be assured.

This Year's Acreage of Oats was never exceeded except in 1889, when over 750 million bushels of oats were grown on 27,460,000 acres. The breadth of oats of the present season has been nearly a million acres larger than the average of the three years preceeding. The indicated yield of 620 million bushels is 41 millions less than last year, compared to an average of 614 million bushels for 1890-1-2, 584 millions for the previous ten years, and 314 million bushels as the annual average 1870-79.

The condition of oats has fallen ten points since the July report, being 78.3 as compared with 88.8 last month, while in August, 1892, it stood at 86.2. It is the lowest condition reported in August for many years, and is due to a cold, wet spring succeeded by continuous dry, hot weather during the latter part of June and the whole of July.

Our interpretation of the Department of Agriture's August returns is as follows, areas and total yields being expressed in thousands, omitting hundreds for brevity's sake:

	Ac's in Oats		*Bu.p. ac*		*Total Crop Bu.*	
	1893.	1892.	'93.	'92.	1893.	1892.
New England..	303	303	32	32	9,696	9,955
New York.....	1,231	1,383	28	26	32,006	38,729
Pennsylvania..	1,156	1,177	24	24	27,696	29,664
The South.....	4,901	5,039	15	16	73,515	80,624
Ohio.....	952	1,002	23	22	21,896	26,364
Michigan.....	885	968	29	29	25,665	27,809
Indiana	1,156	1,100	29	26	33,524	29,175
Illinois	3,082	2,854	28	27	86,296	75,063
Wisconsin.....	1,675	1,674	28	30	46,900	50,572
Minnesota	1,692	1,596	25	28	42,300	43,573
Iowa.....	3,849	3,773	22	25	84,678	95,841
Missouri	1,229	1,204	22	20	27,038	24,093
Kansas.....	1,578	1,547	19	29	29,982	44,094
Nebraska	1,599	1,615	20	27	31,180	43,131
South Dakota..	766	702	20	28	15,320	18,472
North Dakota..	491	472	26	31	12,766	12,510
West.....	639	648	28	30	17,892	18,515
Total	27,253	27,063	22	24	619,566	661,033

(*Continued on Page* 536.)

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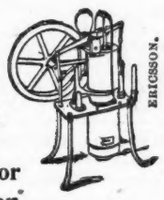

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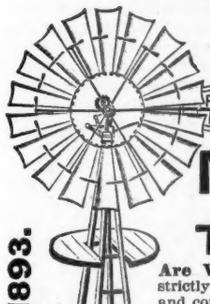

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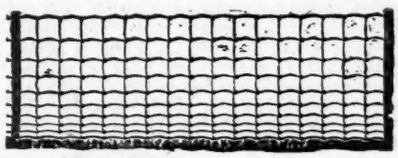

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THE CROPS OF THE WORLD.

(*Continued from Page 534.*)

The Bread Crops of the World.

The European and American stocks of wheat on August 1st, were returned by Beerbohm (London) and Bradstreet's (New York) at 151,000,000 bushels, or only 27,000,000 less than in February and March, 52,000,000 more than at the same date last year, and 65,000,000 bushels in excess of the average August supply for the past five years. This would usually be accepted as a cause for low prices, but Beerbohm already concedes that the 1893 crop of the principal wheat exporting and importing countries (exclusive of Russia) is likely to be at least 152,000,000 bushels less than last season.

Should this prove to be the fact, and even if Russia has as good a crop as in 1892, the countries named will have about 100,000,000 bushels less wheat to consume during the ensuing twelve months than during the year ended August 1st.

The European rye crop is hardly a fair average, but superior to the great shortage of rye two years ago. Oats and other cereals have felt the drouth in Europe, and the American supply of these grains is by no means up to the full average of recent crops. With no extra surplus of other bread crops, and an assured deficit of wheat, to say nothing of a material reduction in the supply of potatoes at home and abroad, the conclusion is justifiable that present prices are abnormally low. Europe needs more wheat than she bought last year, and the United States can hardly hope to export more than she did.

The following is Beerbohm's preliminary estimate, but the European crop is believed by some to be underestimated. The last column are the official returns of the 1892 crop, which emphasize discrepancies in Beerbohm's data even for last year:

WHEAT CROPS OF LEADING COUNTRIES
(Stated in round millions of bushels).

	1893. Bushels.	1892. Bushels.	1892. Official.
United Kingdom	56	61	60
France	280	312	310
Germany	100	116	100
Hungary	118	142	138
Roumania & Bulgaria	80	96	100
Spain	80	76	78
Italy	112	120	114
India	*267	206	203
U. S. America	400	520	516
Totals	1,493	1,646	1,619

*Official, government return.

Other Money Crops.

The Sugar Crop is expected to be better than last year, but condition of sugar cane in the seven surplus sugar States averages 90, or but one point higher than last year. Willett places our crop at 232,500 long tons, including 12,000 tons of beet sugar, against 218,725 tons last year. But the Cuban and West India crop is likely to be so reduced that with a shortage of 100,000 tons in the European crop of beet sugar, the authority quoted estimates the sugar, product of the world at nearly 300,000 tons less than last year—a deficiency of about five per cent. Prices are more likely to be affected by changes in legislation than by changes in production. Of the world's crop, about 3,000,000 tons come from cane and 3,400,000 tons from beets, making a total of 6,400,000 long tons in 1893.

Potatoes Will be High in price, especially if the present duty of 25 cents per bushel is maintained. The land devoted to this crop is slightly increased, but its condition declined nearly nine points during July, and now stands at 86. Condition in August has only been lower twice in the last decade. The general drouth has been the cause of this falling off, and rain is needed badly to prevent further disastrous losses. Aside from Maine, where drouth has not so seriously cut the growth in the great shipping district of the Aroostook, August condition in the other States of principal production is quite as bad as last year. Unless the season should prove peculiarly favorable to the late crop, it is difficult to see how the crop can average over 65 bushels per acre, against 62 last season and 94 the year before. This points to a crop of only 165 million bushels, compared to 150 millions last season and 245,000,000 bushels in the bountiful crop of two years ago.

The crop is better in the eastern provinces of Canada, and that section will have a large surplus for export, unless blight or rot sets in. Potatoes in Great Britain, France and Germany have been seriously reduced by drouth. With a shortage of grain in these countries, which consume such a great quantity of potatoes, the prospect is remote of their exporting potatoes to the United States. Our domestic potato crop promises to exceed in value per bushel even our wheat, and prices will probably go to the point at which Canadian tubers can be imported at a profit.

The breadth and condition of sweet potatoes promises only the usual supply, if not a smaller surplus than usual, so that Irish potatoes will suffer no extraordinary competition from this source.

Cigar Leaf Tobacco has been seriously affected by drouth, especially in New England where the finest wrappers are grown. August 1st condition in Massachusetts is ten points below last year, and in Connecticut the situation is still worse, though the government report does not reveal it. New York shows a falling off of five points, but Wisconsin's condition is returned as high as last August, and Pennsylvania's are better. The supply of '93 wrappers will certainly be much less than of the crop, and if the tariff uncertainty is removed and the existing duty maintained a sharp upward movement in prices may be expected.

The heavy leaf States show a serious curtailment of probable yield. The acreage is quite as large as usual, but the August condition of the burley tobacco in Kentucky was 77 compared to 87 last year, Tennesee five points poorer than last season, Arkansas seven and West Virginia 40. The August average for the eight heavy leaf States is 81 contrasted with 87 last season. Old leaf has been well cleaned up, stocks of manufactured tobaccos are light, and crop conditions point toward fair prices.

The Hay Crop on the whole is large, and has generally been secured in good condition, although in some important regions unfavorable conditions caused a reduction of the crop. The condition of timothy crop is 89.6 as compared with 93.2 in 1892. The product of clover and its quality compare favorably with previous crops. The *Farm and Home* is probably quite correct in saying that the present hay crop was gathered from 43,000,000 acres and exceeds 83,000,000 tons, or about a million tons increase over last year.

Abroad the crop is very much reduced by drouth, and a heavy export demand for hay is assured. It will be met this fall by cheap Canadian hay, but when that is marketed, the surplus of the United States will be in active demand. Hay for export must be pressed into small bales, well wired. The London paid $25 to $30 per long ton for best mixed clover (American) during the second week of August, but freights and commission eat up $7 to $12 per ton. This outlet for surplus hay means a continuation of the light imports of Canadian hay into the United States that have characterized the past two years. On the whole, it looks as though hay has never paid better than the new crop bids fair to do. Our hay crop is worth a thousand million dollars.

The Wool Market is dull, owing to depression in manufacturing. The market for the new clip has not really opened, but imports for the past fiscal year were seven million pounds less than last season, while in June imports of wool of the first class were only one-third as much as in the like period of last year. While this reflects a depression in manufacturing, it is also a partial confirmation of the reduced supply in Australia. The domestic clip is probably larger than last year.

The Market for Hops is beginning to feel the effect of the now assured heavy deficit in the German crop. That country usually grows a large surplus for export, but this year may have to import hops. Reports from England are conflicting, but indicate a yield less than last year, and possibly a heavy reduction. The *New York Homestead* of Syracuse, the authority on this crop will take its annual census at the close of the harvest, but concedes a crop in the United States no larger than last year, and perhaps considerably less. With the large extra demand from England and Europe, prices for American hops have already taken an upward tendency. Numerous contracts were made in July at fifteen cents on the Pacific coast, but twenty cents does not appear attractive either to growers there or in New York State. In Central New York as high as twenty-five cents has been paid (Aug. 15), and thirty cents is reported as a fancy price paid for especially early hops.

The Small Grains---Exports.

Rye was grown on fewer acres than last year, owing to the decline in price. Winter rye was not up to a full stand and the condition of spring rye fell off nearly nine points during July, so that the crop is likely to be short, and the surplus for export no more than the last crop, of which we shipped 1,500,000 bushels compared to over 12 million bushels of the '91 crop.

Barley has suffered to some extent, and its condition is six points worse than twelve months since. With a falling off of seven per cent. in acreage, this means quite a shrinkage in the supply. But unless the duty is reduced, imports are not likely to be more than 2,500,000 bushels—the average of the past two years—and prices should be well maintained.

Buckwheat will be harvested on 4 per cent. fewer acres than last year. Its condition is a little poorer than last season. The crop passes wholly into domestic consumption, and should therefore command a slight advance on its usual prices.

Our Exports of Grain have been heavier this summer than during the great movement of cereals to Europe two years ago when those nations were threatened with famine. In the six weeks ended August 11, we shipped abroad from our principal ports of export no less than 28,000,000 bushels of wheat, including flour as wheat, against 18 millions in the like period last year, 19 millions in 1891, and 12 and 10 million bushels in the two years before that. In June we shipped 16,000,000 bushels of wheat, or six millions more than in June two years ago.

Nearly 8½ million bushels of corn (maize) have also been exported during the six weeks above noted, or twice as much as in the like period two years ago, and nearly three times as much as last year in the same time. This confirms the claim that the Department of Agriculture has introduced maize into Germany and France so thoroughly that an export trade in this crop is now finely established.

The Fairs of 1893.

The very complete list of State, county and other fairs of agricultural and horticultural associations, which annually forms a feature of the AMERICAN AGRICULTURIST, appeared in our August issue. It is the most accurate and extensive list of the kind published, and is widely sought after. The following additions have been received:

Maryland, Tri-state	Cumberland	Oct. 3-6
Quebec	Montreal	Sept. 4-9
South Dakota	Aberdeen	Sept. 11-15
Fresno	Fresno, Cal.	Sept. 25-30
Fairfield	Danbury, Ct.	Oct. 2-7
Tolland	Stafford Springs, Ct.	Oct. 3-5
Bureau	Spring Valley, Ill.	Aug. 22-24
Effingham	Watson, Ill.	Sept. 19-22
Franklin	Benton, Ill.	Sept. 19-22
Morgan	Jacksonville, Ill.	Sept. 26-29
Peoria	Elmwood, Ill.	Aug. 28-Sept. 1
Winnebago	Rockford, Ill.	Sept. 4-8
Boone	Lebanon, Ind.	Aug. 21-26
Huntington	Warren, Ind.	Sept. 12-16
St. Joseph	South Bend, Ind.	Sept. 11-15
Steuben	Hamilton, Ind.	Oct. 1-6
Tippecanoe	Lafayette, Ind.	Sept. 4-8
White	Monticello, Ind.	Aug. 21-25
Ida	Battle Creek, Ia.	Sept. 19-21
Iowa	South Amana, Ia.	Sept. 13-15
Osceola	Sibley, Ia.	Sept. 27-28
Poweshiek	Malcom, Ia.	Aug. 29-Sept. 1
Scott	Davenport, Ia.	Sept. 9-14
Boone	Boone, Ia. Dis.	Aug. 29-Sept. 1
Lee	West Point, Ia. Dis.	Sept. 26-29
Warren	Bowling Green, Ky.	Sept. 5-9
Franklin	Charlemont, Mass.	Sept. 14-15
St. Joseph	Sturgis, Mich.	Sept. 25-30
Martin	Fairmont, Minn.	Sept. 21-23
Mower	Austin, Minn.	Aug. 30 Sept. 1
Olmsted	Rochester, Minn.	Aug. 28-Sept. 2
Greene	Spfg'd, Mo. Dis.	Aug. 28-Sept. 2
Somerset	Somerville, N. J.	Sept. 12-14
Broome	Binghampton, N. Y.	Sept. 19-23
Broome	Windsor, N. Y.	Sept. 12-15
Dutchess	Poughkeepsie, N. Y.	Sept. 26-29
Schoharie	Schoharie, N. Y.	Sept. 18-21
Ashtabula	Jefferson, O.	Sept. 26-29
Columbiana	Wellsville, O.	Aug. 22-25
Defiance	Hicksville, O.	Sept. 19-22
Gallia	Lincoln, O.	Sept. 8-15
North'n Perry Co	Somerset, O.	Oct. 18-20
Tri County	Richwood, O.	Sept. 12-15
Wyandot	Upper Sandusky, O.	Oct. 10-13
Armstrong	Apollo, Penn.	Sept. 19-22
Centre	Centre Hall, Penn.	Sept. 18-23
Dauphin	Harrisburg, Pa.	Aug. 29-Sept. 1
Pennsylvania Dist.	Erie-Edinboro, Pa.	Sept. 26-28
Bon Homme	Scotland, S. Dak.	Sept. 19-22
Washington Co.	Waitsfield, Vt.	Aug. 29-31
Walworth	Elkhorn, Wis.	Sept. 19-22
Antigonish	Pictou, N. S.	Sept. 19-22
Colchester	Pictou, N. S.	Sept. 19-22
Cumberland	Pictou, N. S.	Sept. 19-22
Pictou	Pictou, N. S.	Sept. 19-22

OUR LIBRARY CORNER.

Book Reviews.

BULBS AND TUBEROUS-ROOTED PLANTS. Their History, Description, Methods of Propagation, and Complete Directions for Their Successful Culture in the Garden, Dwelling and Greenhouse. By C. L. Allen. Profusely Illustrated. New York: Orange Judd Company. 1893. 312+vi pp., il., 12 mo., cloth, $2.

The growing of bulbs to produce flowers in their greatest perfection, is a branch of gardening peculiar to itself, and one in which the minor, yet important details, are not generally understood. It is one of the objects of this book to show how the growing of bulbs can be made a pleasure, or a profitable industry, by giving complete cultural instructions in detail. The flowering of bulbs is a very simple matter. The bulb, when it comes from the hand of the grower, contains within itself the food for the future flower, and it does not require the gardener's skill to develop it. There are a few necessary points to be considered, and these are so plainly stated, that many of the supposed difficulties in their cultivation have been removed. Causes of failure have been explained so fully that, with but little trouble, there need be no fear of loss in their cultivation. The growing of bulbs, other than the charms their flowers possess, has many advantages over that of any other class of flowering plants; among others, and a very great one, is that many of them produce their flowers in very early spring, at a season when few other plants are in blossom, and yet when flowers are doubly valuable from their rarity. At this season, in a sheltered, sunny spot, a few clumps of snowdrops, crocus and scillas will present a mass of color, in graceful forms, while the snow yet lingers in shaded places; before these are gone, the hyacinths refresh us with their grateful fragrance; these are soon followed by the narcissus and showy tulips, and all before other vegetation is fairly started. In rapid succession follow the crown-imperials, the iris, and, before these are gone, the gladiolus and lilies commence their long succession of bloom. Interspersed with these is a host of other bulbs, equally valuable for their flowers, but whose names are rarely mentioned. Another advantage that bulbs possess, is their long period of rest, which leaves the ground half the year free for other plants. The bulbs may be removed from their places of bloom into the reserve garden to ripen, which makes their place free for the introduction of annuals, or other flowering plants. Beginners have an impression that there are many difficulties to be met in the management of bulbs, which must be overcome in order to have them produce their flowers to perfection; whereas, in reality, no other plants are so easy to manage, none more showy, and none succeed as well under all circumstances, as the different classes of bulbs and tuberous-rooted plants. To facilitate reference, the various genera are alphabetically arranged. This work is profusely illustrated with original engravings, some of which are half-tone plates. A copious index adds to the value of the book. Sold by Orange Judd Company. Price, postpaid, $2.

Recent Publications.

GOVERNMENT PUBLICATIONS.

UNITED STATES DEPARTMENT OF AGRICULTURE, Washington, D. C. Report of the statistician: Crop report for July: statistics of Ontario; foreign import duties on wheat; notes on foreign import duties on wheat; notes on foreign agriculture; use of maize of the United States in Mexico; transportation rates (S. R. 106), and synopsis issued in advance of the monthly report from which it is condensed. Contributions from the U. S. national herbarium (1, 7); Systematic and alphabetic index to new species of North American phanerogams and pteridophytes published in 1892. Experiments with fertilizers for the prevention and cure of peach yellows (P. B. 4). A report on the leaf fibers of the United States, detailing results of recent investigations relating to Florida sisal hemp, the false sisal hemp plant of Florida, and other fiber-producing agaves; bowstring hemp, pineapple fiber, New Zealand flax and bear grass (B. 5). Reprints in small editions from the report of the secretary of agriculture for 1892: Entomology; forestry; vegetable pathology; weather bureau; tea-raising in South Carolina. Monthly weather review. Experiments in preventing leaf diseases of nursery stock in western New York. Reprints from North American fauna No. 7: Ornithology of the Death Valley expedition of 1891, comprising notes on the birds observed in southern California, southern Nevada, and parts of Arizona and Utah; Annotated list of the reptiles and batrachians collected by the Death Valley expedition in 1891, with descriptions of new species; Fishes of the Death Valley expedition, collected in southern California and Nevada in 1891, with descriptions of new species; Collection of insects made during the Death Valley expedition, list of diptera from Death Valley, California, and adjoining regions, hemiptera and heteroptera of the expedition; Land and fresh-water shells collected in California and Nevada by the Death Valley expedition, including a few additional species obtained by Dr. C. Hart Merriam and assistants in parts of the southwestern United States; Distribution of trees and shrubs in the deserts and desert ranges of southern California, southern Nevada, northwestern Arizona, and southwestern Utah, notes on the geographic and vertical distribution of cactuses, yuccas and agave in the deserts and desert ranges; Localities in California, Nevada and Utah, visited by the Death Valley expedition of 1891. Report on the forecasting of thunderstorms during the summer of 1892: Introductory remarks; general discussion; brief description of the more important atmospheric conditions which prevailed during the thunder-storm investigation; investigation of thunder-storms in New England; report on thunder-storms in Ohio during the summer of 1892 (W. B. 9). Proceedings of a convention of the national league for good roads, held at Washington, D. C., January 17 and 18, 1893, and hearing by the committee on agriculture of the House of Representatives, January 19, 1893.

AGRICULTURAL EXPERIMENT STATION BULLETINS.

ALABAMA—At Auburn. Injurious and beneficial insects (B. 45). Rye or silage (B. 46). Fruits (B. 47).

CALIFORNIA—At Berkeley. Analyses of figs and fig soils (B. 102).

LOUISIANA—At Baton Rouge. Results of the year 1892 (B. 22). Oranges and other citrus fruits (S. B. 1893).

MARYLAND—At College Park. The composition and digestibility of the different parts of corn fodder (B. 20). Composition of commercial fertilizers (S. B. K.).

MASSACHUSETTS—At Amherst. Weather (S. B. 48), (H. B. 51).

MICHIGAN—At Agricultural College. Birds of Michigan (B. 94). Potatoes (B. 95).

MISSISSIPPI—At Agricultural College. Colic in horses and mules (B. 25).

NEW JERSEY—At New Brunswick—Analyses and study of Home-mixed fertilizers and fertilizing materials (B. 93).

NORTH CAROLINA—At Raleigh. Fifteenth annual report. Sixth annual report of the meteorological division. Fertilizer analyses (B. 89*a*), (B. 90*c*), (B. 91*b*). The Oxford tornado of 1893 (B. 91*c*).

PENNSYLVANIA—At State College. Forest fires; Experience with evergreens in Pennsylvania (B. 23).

SOUTH DAKOTA—At Brookings. The sugar beet (B. 34). Fungus diseases and insect pests (B. 35).

CATALOGUES ACKNOWLEDGED.

ELLWANGER & BARRY, Rochester, N. Y.: Summer and Autumn Illustrated Catalogue of Strawberry Plants of all the leading kinds. Pot-grown plants are a specialty; also Holland Bulbs, Lilies, Roses and many other specialties.

J. T. LOVETT CO., Little Silver, N. J.: Summer and Autumn Catalogue of Pot-grown and Layer Strawberry Plants, with instructions for their cultivation. A very handsome catalogue plate representing the strawberry gems of 1893 is inserted.

PITCHER & MANDA, Short Hills, N. J.: Special price list of Holland Bulbs, Lilies and forcing and bedding stock of various kinds.

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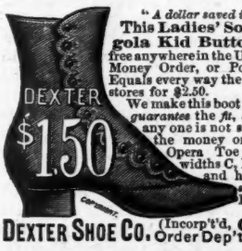

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SCIENCE IN FARMING.

Pasturing Swine.—When grazing, swine will eat enough to maintain existence, and often more. Long periods are required for fattening pastured hogs, however, and they must be carried over one winter with risks, costs, and an increased amount of maintenance food as they grow older. Experiments at the Utah station by J. W. Sanborn (B. 22) show that when pigs have enough ground wheat, barley and bran as a grain ration they will not consume much grass, and that the excess food eaten is only about sufficient to supply the energy essential to the extra exercise. The growth of the four trial lots of pigs was proportional to the amount of grain consumed, which was determined by the amount of exercise secured. The mixed tame grasses and clovers were not so conducive to digestion as to make more efficacious a full grain ration. Well fed grazing pigs made in the experiment, approximately, the same economical use of food as those without grass, but having exercise.

Rape for Winter Pasture.—Rape is a useful fodder plant that will furnish abundant supplies of nutritious autumn pasture, after the corn has been husked, and before the setting in of winter, when most of the grasses are dried or frosted. T. Shaw of the Ontario station, reports to the U. S. Department of Agriculture (F. B. 11) that the Dwarf Essex rape (Fig. 1) can be easily grown in the Northern United States. The broad leaves of this variety soon cover the field with a mass of foliage from one to three feet deep, but it does not blossom the first year. The Hybrid rape (Fig. 2), so

FIG. 1. DWARF ESSEX RAPE.

largely sown in 1892, blooms in a few weeks after it is planted, and yields only one-third as much forage. The Summer rape (Fig. 4) is useless for pasture, being grown in Europe for oil and bird seed. When sown broadcast from three to five pounds of Dwarf Essex seed may be sown according to conditions of soil and moisture. In drills, sow from one to two pounds, and cultivate as with turnips or corn. In cool climates, it may be sown for soiling purposes in May, and mowed or grazed off growing up again vigorously. The best results come from June or July sowings. When the growth is rank, sheep need not be hurdled, when feeding on the rape field, as they graze around the edges, eating the entire growth. Cattle do best turned off the rape during the night. In some seasons, a good crop of rape can be grown after a crop of winter wheat has been harvested. Rape and old meadow pasture makes an excellent ration for lambs. One acre of rape will pasture about 30 lambs during the autumn, each gaining about 10 pounds per month. When supplemented with more concentrated foods, rape will fatten swine, and may even be fed to cows giving milk. As with other green forage, stock should not be allowed full feeds at first, and should have access to salt at all times.

Changes in the Ripening of Cheese.—The bacterial ripening of ordinary cheese has been studied by L. L. Van Slyke of the New York State station (B. 54). In the five months from October to February, the loss of weight was over 13½ per cent. The loss of water was 10⅔ per cent, or over one-fourth of the water in the cheese. The loss of solids was nearly three per cent. of the whole weight. There was no fat lost. There was a loss of nearly one and a half pounds of casein to the 100 pounds of green cheese. In every case, the amount of soluble nitrogen compounds increased very much, the maximum being one and seven-tenths pounds. The green cheese contained no nitrogen in the form of either amide or ammonium compounds, but after five months had considerable amounts of both. The cheese, in the manufacture of which the largest amount of rennet was used, contained

FIG. 2. HYBRID RAPE.

considerably more of the soluble nitrogen compounds. The cheese made from partially skimmed milk contained the smallest proportion of soluble nitrogen compounds at five months, while the cheese made from milk containing added cream, contained, with a single exception, the largest proportion of soluble nitrogen compounds.

Egg Plant in Cold Climates.—Experiments at the Maine station by W. M. Munson (R. '92) indicate that with careful treatment, the egg plant may be successfully grown in that climate. The most important requisites of success are: Early sowing; vigorous plants; late transplanting to the field; warm, rich soil; thorough cultivation; and constant watchfulness for the potato beetle. The earliest varieties should be planted. The chief advantage derived from the crossing of the different races of egg fruits, was in the increased vigor and productiveness of the seedlings.

Greenhouse Tomatoes.—The œdema of the tomato is a swelling of portions of the plant brought about by an excess of water, which stretches the cell walls, making them very thin and the cells very large, sometimes breaking them and killing that part of the plant. Experiments at the New York Cornell station, by G. F. Atkinson (B. 53), show that the long nights of the early winter, the many cloudy days, and the walls and framing of the forcing house deprive the plants of needed light, which prevents the proper transpi-

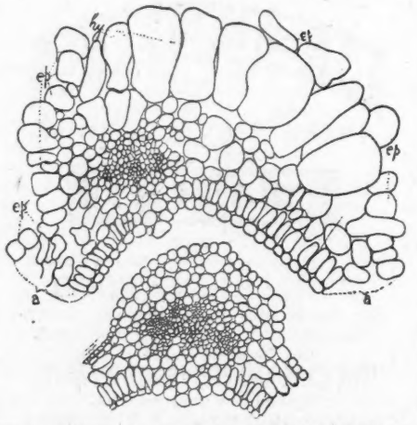

FIG. 3. DROPSICAL AND HEALTHY TOMATO STEMS.

ration of the plant fluid, except in the well-lighted parts of the house. Water in excess can be withheld from the soil. A high temperature of the soil makes the roots active, so the aim should be to have the temperature of the air considerably higher. Acids in the plant accumulate in a lack of light, and draw water into the cells, but in a strong light these acids decrease. Lack of light prevents the plants from building up strong tissues, and in such cases plants may grow themselves to death. Possibly, artificial light might be used to advantage. A quiet and close atmosphere also favors the accumulation of water in the plant. Hence, good ventilation should be secured. Those varieties of tomatoes with a tendency to a very rapid and succulent growth are more liable to œdema, while those varieties which develop a firm, woody young stem are less liable to the disease. The illustration (Fig. 3) shows a magnified view of sections of œdematous and healthy tissue.

Spraying Insecticides.—The entomologist and botanist of the Minnesota station, O. Lugger, recommends (B. 28) that no more of an insecticide be applied than is absolutely necessary, because of the increased expense and of the liability to injure, instead of to protect the crops. Insecticides should be applied early, as soon as the causes of the injury are recognized, and the chemicals should always be applied as uniformly as possible, covering all parts of the plant, especially both the upper and lower surfaces of the leaves. The only way to do this thoroughly is by the use of spraying machines, some of which are adapted for trees, and others for low-growing plants. Every machine should have, besides the usual pipe leading to the nozzle, another return pipe, which carries, at every stroke of the pump handle, a stream back into the tank holding the poison in suspension, which otherwise tends to settle and leave a clear and useless fluid to be sprayed over the plants. A good nozzle is of the greatest importance, one that will not simply sprinkle the fluid over the plants, but one that will divide it into such minute parts as to form a genuine spray, which will cling to the leaves and stems.

Texas Cattle Fever.—Texas fever is in all probability a cosmopolitan disease, limited in its distribution by latitude, rather than by oceans. Experiments conducted by T. Smith, F. L. Kilborne and E. C. Schrœder, under the direction of the United States Bureau of Animal Industry (R. '92) show that Texas cattle fever is a disease of the blood characterized by a destruction of red blood corpuscles. The symptoms are partly due to the anæmia produced, partly to the large amount of débris in the blood, which is excreted with difficulty and which de-

FIG. 4. SUMMER RAPE.

ranges the organs occupied with its removal. The destruction of the red corpuscles is due to a micro-parasite which lives within them. It belongs to the Protozoa and passes through several distinct phases in the blood. Cattle from the permanently infected territory, though otherwise healthy, carry this micro-parasite in their blood, which, if inoculated into susceptible cattle, will produce the Texas fever. The cattle tick, *Boöphilus bovis*, transmits this fever-producing micro-parasite from cattle, which come from permanently infected territory, to cattle outside of such territory. The infection is carried by the progeny of the ticks, which mature on infected cattle, and is inoculated by them directly into the blood of susceptible cattle. Sick natives having ticks, may be a source of infection. The fever is more fatal to adults than to young cattle. Two mild attacks or one severe attack will probably prevent a subsequent fatal attack in every case. Sheep, rabbits, guinea-pigs, and pigeons, are insusceptible to direct inoculation. Other animals have not been tested. In the diagnosis of Texas fever, especially in the living animal, the blood ought to be examined microscopically.

Fertilizers.—In the preparation of fertilizer formulas the quality of the plant food is of first importance, reports L. A. Voorhees and J. P. Street of the New Jersey station (B. 93). The proportion of the different elements, and the amount to be applied, should be determined by the object of their use. It is best to buy commercial mixtures direct from the manufacturers. The use of fertilizers is increasing, though the present annual cost may be reduced by a definite knowledge of what and how to buy.

Notes of Interest.

Connecticut Agricultural College.—In the reorganization of the Storrs Agricultural College, the schedule is so arranged that those who can pass an examination on the studies of the first year can complete a briefer course in two years more, which is very similar to the two years' course formerly given in the school. A four years' course is provided for, and the young men will receive military drill. The College is now open to young ladies, and it is provided that their studies will be the same in general as the young men's, but where the latter are of a purely agricultural nature, such as surveying or stockbreeding, then domestic science, household economy, cooking, cutting, fitting, sewing, care of the sick, health of the home and physical culture will be substituted. Good, comfortable rooms have been provided for the young ladies, who will be under proper supervision. The fall term will open September 25th. The best of facilities are provided for all who wish to secure a good education at moderate cost.

Thirteen and Seventeen Year Locusts.—The Entomological Division of the United States Department of Agriculture at Washington, D. C., wishes to learn of any thirteen or seventeen year locusts, or cicadas, which may be noticed this season, together with the extent of territory over which they appear, and any well-attested dates of their appearance in previous years. Brood XVI of *Cicada tredecim* is expected to appear in 1893 in Lowndes county, Alabama; Cobb and Cherokee counties, Georgia; Lincoln county, Tenessee; Lincoln and Moore counties, North Carolina. This brood is but little known, and all localities require further confirmation this year. Brood XI of the *Cicada septendecim*, which has red eyes, is due in North Carolina, from Raleigh, Wake county, to the northern line of the State, also in the counties of Rowan, Davie, Cabarrus, and Iredell; in Virginia, from Perersburg, Dinwiddie county, to the northern line of the State, Bedford and Rockbridge counties, Valley of Virginia from the Potomac River to the Tenessee and North Carolina lines; in the District of Columbia; in woods north of Washington; in the southern half of St. Mary's county, Maryland; Trimble county, Kentucky; Knox, Sullivan and Posey counties, Indiana; Madison county, Illinois; Dickinson and Leavenworth counties, Kansas; Cheyenne Canyon, Colorado. This is a well established brood, most of the localities in the Eastern States as well as those in Indiana and Illinois having been verified in past years; but the localities in Kentucky and Kansas require confirmation, and that in Colorado is extremely doubtful.

California Beet Sugar.—The estimated output of beet sugar for the season, at the Chino Sugar Beet Works is 16,000,000 pounds of refined sugar, from an estimated yield of 60,000 tons of beets. This factory is the largest, not only in California, but in the United States as well, having a daily capacity of 740 tons. The sugar beet industry gives direct employment to 2,000 men in Chino, and to 700 men at Anaheim. From the ranch at the latter place 10,000 tons of beets are shipped to Chino. The factory will be run day and night throughout the autumn sugar campaign, working up an average of 600 tons of sugar beets daily.

Delaware Agricultural College.—A special winter course of thirteen weeks in agriculture will be given by the Delaware Agricultural College, at Newark, to such young farmers as wish a better preparation for their life work, but who cannot afford the time necessary for a full college course. Nine hours per week will be devoted to agricultural and horticultural studies, six hours to related sciences, and eight hours to practice work in the shops and laboratories, working in wood or iron, mixing and using various preparations for the destruction of insects and plant diseases, the study of diseased animals, and the dissection of plants and insects. This course is open to all young men over fifteen years of age, and no examinations for entrance are required, but no one is advised to take it who has not at least a good common school education. This course is under the direction of W. H. Bishop, Professor of Agriculture. The college also offers a full four years' course, leading to a degree, and a two years' course, which includes most of the agricultural branches and some natural sciences and English.

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TOPICS OF THE TIMES.

The Outlook for Prices.

Artificial conditions have combined with natural reasons to force prices of several of our staple crops to the lowest level ever known. On July 31st, No. 2 wheat sold at Chicago for less than 55 cents per bushel, and for several weeks farmers in the surplus wheat States have been able to get only from 38 to 45 cents per bushel for wheat of the finest quality and highest grade. Other cereals have fallen in proportion, while the collapse of the speculative corner in barreled pork has also affected the prices of provisions.

The immediate occasion for the decline that went into effect in July has been the scarcity of money. Owing to the financial uncertainties through which our own and other countries are passing, the American people have made the great mistake of hoarding their currency, even to the extent of withdrawing it from the banks. This has made it impossible for banks to advance money as freely as usual on grain and other produce. Thus the merchant has not been able to get money with which to buy wheat. For the same reason the farmer has been unable to borrow and in many cases has been forced to sell his new crop for whatever pittance is offered.

The prospect for prices in the early future, therefore, depends more upon the monetary situation than upon existing natural conditions, all of which point to causes that should result in higher prices. We thus have a disturbing factor to contend with that may upset all calculations. With ordinary confidence in financial circles an immediate and sharp advance in wheat, corn and oats would be fully justified. If confidence in the financial world were specially sanguine, a veritable boom in prices might be looked for. Meanwhile Europe is taking advantage of these low prices and buying our grain in immense quantity against her own shortage, which she now fully appreciates, and is sending us many millions of gold in payment for the same.

The outlook is, therefore, hopeful, but the wisest man can say no more. The AMERICAN AGRICULTURIST believes that if Congress acts wisely, July and August will prove to have witnessed rockbottom prices in our principal crops and other staple articles of merchandise and investment. The real industries of the country have not been overdone and have generally been managed with conservative prudence during the past year or so. Were the uncertainties over our finances and tariff removed, natural conditions would justify a substantial improvement that in many sections would inaugurate a boom era.

The best thing farmers can do is to study closely not only our crop reports and review of supply and demand, but watch the course of the markets from week to week, selling as little as possible, and either converting the bulk of their crops into meat or dairy products, that have not been so much depressed in prices, or hold their grain for the later market. It is incumbent upon everyone, also, in times like these, to do their part toward restoring confidence and improving the situation. This can be done by paying out or loaning to those who need it, or depositing in banks where it can be used, whatever money each of us may have. If all would do this, money would quickly become easy, the present exorbitant rates or interest would fall to a reasonable level, prices of the staple products of our farms and factories would speedily advance, labor be employed at fair wages, and we should at once have "good times."

The Prospect for Live Stock.

Cattle, sheep and hogs have not been marketed this season as freely as in previous years. The statistics for Wichita, Kansas City, St Louis, Omaha, Chicago, Buffalo, New York and Boston show a heavy falling off in receipts of all live stock. There has been a corresponding decrease in shipments to the domestic markets or for export, and a large shortage in the stock of hogs compared to last year.

Exports of beef cattle also show a falling off of one-third in numbers compared to last year, with a similar condition of sheep exports. Dressed beef exports were only 130,000,000 pounds in the eight months ending June 30, 1893, nearly 22 million pounds less than in the preceding period. Of canned, salted and cured meats our exports were 85,000,000 pounds, or ten millions less, while in these same eight months we exported only 276,000,000 pounds of pork products—a decrease of one-half. There has been a similar falling off in exports of tallow and lard.

The conclusion is irresistible that the recent and prolonged depression in live stock values discouraged the production of live stock until the quantity available for slaughter is much less at this date than for several years. The returns to the United States Department of Agriculture in January as to the numbers of farm animals indicated this result, and it has been confirmed since by the decreasing quantity marketed.

Except for a considerable gain in production of mutton in Australasia and the Argentine, there appears to have been no extraordinary or compensating development of the live stock industry in other countries whence Europe draws her supply. And now the drouth has so reduced the forage crops of England, France, Germany and some other parts of Europe that for six or eight weeks the farmers there have been obliged to sell their stock because they could not afford to buy feed to keep it. While prices of meats have therefore been exceptionally low in England and Europe, and for the same reason may continue on a low plane for another month or two, it is evident that the domestic supply of meats in those countries is being reduced to an extraordinary degree. Hence it is not surprising that the July and August exports of cattle and sheep from this country already show a gain over last year.

Indeed, the foreign demand for meat is likely to materially increase as time goes on. Unless the European drouth has been very much exaggerated, it will be two years before that region can restore its domestic supply of live stock, and it will certainly require another year of breeding before the United States can bring the number of its marketable neat stock up to the usual average. The outlook for an active market for live stock at good values for the ensuing year would therefore seem to be excellent.

Dairy Products In a Good Position.

Values of butter, cheese and milk have been maintained this summer considerably better than during this period of over-production in former years. Shipments to domestic markets have not been over large and have been so well distributed that there has been no glut of butter or cheese anywhere. Consumption is increasing also, as the average quality of our butter and cheese improves. Commercial reports indicate a smaller stock in cold storage than usual on August 1, and with pastures in poorer condition than at this time last year, there would seem to be little to obstruct the usual fall and winter advance in prices. The apparent decrease in production is partly accounted for by the falling off of the number of cows kept in the dairy States. The reduction in the live stock supply of Europe is expected to curtail the output of butter there and increase the demand for butter and cheese from America and Australia.

Canadian exports of cheese continue on a large scale, but from the United States show a decline for last year of over two million pounds, and of nearly 20 per cent. for the two months ended June 30. That the domestic market will consume at good prices all the butter that we are producing is emphasized by a falling off of nearly one-half in butter exports during the last fiscal year, while for the two months ended June 30, we shipped abroad only 941,000 lbs. of butter as against nearly three times as much in the corresponding period of last season. In spite of the known increase in winter dairying, the business is likely to be even more profitable than usual during the next six or eight months, unless restricted by high prices for feed.

There has been less surplus milk than usual in the large cities, and the New York price was advanced in August.

International Irrigation Congress.

The western half of North America is so deeply interested in the artificial watering of arid and semi-arid regions, that an international irrigation congress is to meet at Los Angeles, California, on the tenth of October. Upwards of one thousand of the leading irrigationists of the United States, Europe, Asia, Australia and South America will be present, and discuss a number of important questions concerning irrigation methods, irrigation law and irrigation securities. The congress will also include an important convention of persons, actively interested in the development of the western half of the United States by means of irrigation. The subjects to be discussed are of such immediate practical interest to the United States, and to the officers of the government having to do with public lands, and with scientic researches pretaining to the soils and waters of the arid regions, that the department of the interior will be represented at the proposed meeting by an officer to be detailed by the secretary of that department, for the purpose of giving such information as may be desired, concerning the results obtained by the surveys, which the United States has been carrying on for several years. The meeting of writers on irrigation, and others having practical experience with reference to irrigation problems, cannot but prove highly beneficial to the most important interest, not only to our own country, but to all others where irrigation is practiced, even to a limited extent. The subject of irrigation is one that is rapidly assuming vast proportions in the United States, especially so far as concerns the large extent of arid lands, and the success which has attended its practice therein, has naturally caused its spread throughout the rainy regions as well. Irrigation will receive a fresh impulse from this well-designed and thoroughly-planned international congress.

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FARMING IN FOREIGN LANDS.

Experiments made in the tobacco cultivation throughout Europe have not given much promise of success. In Germany, where the cultivation of tobacco has been carried on for a long period, the area planted fell from the average of about 55,000 acres, between 1870 and 1880, to 36,500 acres for last year's crop.

The average requirements of the United Kingdom and France, during ten years past, have been 530,000,000 bushels of wheat, but this year's crop is estimated at only 325,000,000 bushels, leaving a balance of 205,000,000 bushels that it will be necessary to import during the harvest year 1893-94, which is over 60,000,000 bushels more than the average requirements.

The import duties on foreign corn, corn meal and beans in Mexico have been restored, the president judging that the cause for their suspension had ceased. These duties were removed on account of the short crops of last year, in order to prevent distress among the poor people, and Mexico has sent $14,000,000 since then to the United States to pay for corn.

The condition of the English crops continues unsatisfactory, especially in the case of barley, which was planted on a smaller area than usual. Beans shed their flowers without podding, and in many places the crop was cut for fodder. Peas, though a smaller crop than last year, are not in quite as bad condition as beans. Reports as to hay and grass are simply deplorable, and hops will yield nearly 19 per cent. less than a year ago.

Rainfall late in the season proved highly beneficial to field fruits in sections of Germany, though its distribution was very unequal and insufficient to saturate the soil, so as to bring on marked improvement in vegetation. Foodstuffs, hay and late sown spring wheat have suffered much, and the demand for barley for shipment from Russia increased considerably, as also did the demand for maize, oil-cake, hay and oats.

Heavy rains are reported to have fallen in British Guiana. The sugar-cane on heavy clay soils is feeling the effects of this continuous rainfall very much, and the outlook is not very promising. With a rainfall of nearly 30 inches within six months, and a great want of bright sunshine to encourage growth, cane cultivation must be affected throughout the colony. Labor also is very scarce and difficult to obtain at fair prices.

The cattle in Switzerland for milking, draught and fattening are not kept and treated separately with a single object in view; the Swiss cow is expected to unite all these qualities at one time within herself. It is believed that a cow is positively benefited by being put to the plow, especially if the work be done in the morning. A few bullocks, but many cows, are frequently seen serving various draught purposes, not with the yoke but with harness like that used for the horse.

Returns from New Zealand, for the 1893 crops, show a decrease of 1,880,000 bushels in the wheat harvest as compared with 1892, a decrease of 1,115,000 bushels of oats, a decrease of 35,000 bushels of barley, and of 2,150,000 bushels of potatoes. In the extent of land broken up but not under crop there was an increase of 13,800 acres, but the total area actually under crop was 51,400 acres less than in 1892. The Hessian fly did considerable damage, ranging from five bushels per acre to half the entire wheat crop, in different sections.

In a peaty soil, in Madagascar, the native turns over the clods in great masses, drops the seed potatoes in the center of the reversed clod, and waits the result. When progressing towards maturity they are sought for by the owner, not by digging and then selecting the fair-sized tubers and discarding the small ones, but by scratching away carefully the soil with a pointed stick, believing that thus the largest harvest is secured, as he removes the fully grown potatoes and allows the small ones to develop until the haulm is dead.

The sugar cane was introduced into the Madeira Islands in 1425, and in 1498 the annual product exceeded 4,000,000 pounds. The introduction of sugar cane into the West Indies, however, destroyed the industry, and grape culture took the place of the sugar cane until 1852, when the phylloxera nearly swept all the vines out of existence. The sugar cane is again being cultivated, and last year half a million pounds were made. The supply will always be limited, because the cane cannot be profitably cultivated at a higher elevation than 1,000 feet.

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(*From the New York Tribune.*)

For some time there has been an increasing number of stories published in the newspapers of New York City, telling of marvelous cures of various diseases that have been made by different medicines and treatments. It has long been the intention of the *Tribune* to investigate one of the most interesting cases that could be found and give the truth to the world as a matter of news. Happening on the case of Geo. L'Hommedieu, the other day an investigation was made with the following very happy result:

When the reporter called on Mr. L'Hommedieu at the residence of his cousin, Mr. Edward Houghtaling, 271 W. 134th St., he said: "I am 51 years of age and was born in Hudson, N. Y. I served my time in the army, being corporal of Company A, 21st N. J. Volunteers. It has been about 15 years since I noticed the first symptoms of my disease. I consulted Dr. Allen of Yorkville, and also Dr. Pratt, since deceased. Dr. Pratt exhausted his powers in my behalf and finally told me that he could do nothing more for me.

"Finally I was advised by Dr. Gill to go to the well-known scientist, Dr. Hamilton. He gave me a most thorough examination and did me no good. I felt I was growing weaker every day, and went to the Manhattan Hospital, at 41st street and Park avenue, and was under treatment by Dr. Seguin. He treated me for about three months, and then told me that I had locomotor ataxia and was beyond the aid of medical science. I was now a complete physical wreck; all power, feeling and color had left my legs, and it was impossible for me to feel the most severe pinch or even the thrust of a needle.

"If my skin was scratched there would be no flow of blood whatever, and it would take it fully six weeks to heal up. In the night I would have to feel around to find my legs. My pains were excruciating and at times almost unbearable. I would take large doses of morphine to deaden the pains. About five years ago Dr. Lewis A. Sayre of 285 5th avenue made a trial of the French method of stretching the spine. Although I received no benefit from this treatment I shall always feel grateful to Dr. Sayre for his great interest and kindness.

"So severe had my case become by this time that I could not walk without assistance, and was almost ready to give up life.

"I began the use of Pink Pills for Pale People in September last. I took them rather irregularly at first with the cold water treatment. In a very short time I was convinced that I was getting better and I began the use of the pills in earnest, taking about one box in every five days.

"The first sign of improvement was in November, 1892, when I had a rush of blood to the head and feet causing a stinging and prickling sensation. February 22d, 1893, was the first time in five years I had ever seen any sign of blood in my feet. From this time on I began to improve. My strength and appetite have gradually returned; I now have perfect control of my bowels, and the pains have gradually left me. I can sit and write by the hour and walk up stairs by balancing myself with my hands. Without doubt I am a new man from the ground up, and I have every reason to believe that I will be hale and hearty in less than 6 months. I have taken about 12 boxes of pills."

Sworn to before me this Eleventh day of March, 1893.

H. E. MELVILLE,
Commissioner of Deeds,
New York City.

[SEAL.]

The reporter next called on Mr. Robert W. Smith, a member of the firm of Marchal & Smith, who said:

"I have known Mr. Geo. L'Hommedieu for twenty years. He became connected with our firm as secretary in 1879 and attended strictly to his office duties until 1881, when he was stricken down with his trouble. As the disease advanced he was obliged to succumb and reluctantly gave up his office work. I know that he tried various physicians and their treatments without the least success, and, as he states, he was finally discharged from the Manhattan Hospital, and told that he was in the last stages of locomotor ataxia and was beyond the hope of human aid. About six months ago, or so, he was advised to try Dr. Williams' Pink Pills for Pale People, with the cold water treatment. The last time I saw Mr. L'Hommedieu he had gained the use of his limbs to such an extent that he could walk up stairs with the help of his wife, and is now doing much important work for us at his home.

ROBT. W. SMITH."

Sworn to and subscribed before me this Eleventh day of March, 1893.

[SEAL] W. H. WOODHULL,
Notary Public, New York County.

An analysis of Dr. Williams' Pink Pills show that they contain, in a condensed form, all the elements necessary to give new life and richness to the blood and restore shattered nerves. They are an unfailing specific for such diseases as locomotor ataxia, partial paralysis, St. Vitus' dance, sciatica, neuralgia, rheumatism, nervous headache, the after effect of la grippe, palpitation of the heart pale and sallow complexion, and all forms of weakness either in male or female. Pink Pills are sold by all dealers, or will be sent post paid on receipt of price, (50 cents a box—they are never sold in bulk or by the 100) by addressing Dr. Williams' Medicine Co., Schenectady, N. Y., or Brockville, Ontario.

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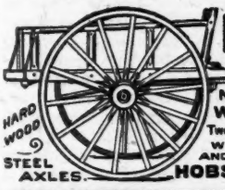

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ANIMAL AILMENTS.

Pink Eye.—C. N. Tindell, Lewis Co., N. Y.: Changes of stable demand especial care, cleanliness, pure water given with the chill removed, and containing a teaspoonful of saltpeter at night, and half as much muriate of ammonia, or carbonate, if there is much weakness, in every drink or feed. Sponging the eyes and nose freely with quite warm water, two or three times a day, warm blanketing and free ventilation will, in a large majority of such cases, ameliorate the attack and very materially shorten the malady.

Crib-Biting—Wind-Sucking.—Z. Z. Winz, Rutherford Co., N. C.: Crib-biting is an acquired vice, probably from indigestion. Animals belch wind after hurried eating, and because of indigestion the gases accumulate in the stomach. Horses require to seize hold of the manger, post or stump in order to belch. Dry, indigestible food is probably the cause, as animals do not easily contract habits from observing them in other animals. Habits are stubborn things to get rid of, and this one especially. Except when eating, buckle a strap around a horses throat, so tight as to prevent the contraction of the muscles of the neck. This will, for the time, prevent the habit. Feed moist feed, at regular intervals only. Horses at pasture or grass do not crib-bite. To fatten, remove the indigestion, and give freely of succulent food, with rich grains and meals, wheat bran, corn meal and wheat middlings.

Lockjaw.—L. Paddock, Coffey Co., Ala., writes: "Lockjaw can be prevented by smoking the wound with wool, or woolen yarn, by holding the foot in which the nail wound occurs over live coals in an iron pan or kettle, and dropping pieces of wool often enough to keep up the smoke. There are two reasons why this treatment is good. It relieves pain and swelling, and heals the wound. Creosote is a powerful disinfectant, and the burning wool creates this substance. Then the sulphur in the wool might produce sufficient sulphurous acid to create another valuable disinfectant. The heat and moisture of the burning wool, woolen rags, or feathers, acts as a fomentation as well as a disinfectant. Carbolic acid in poultices would also be of service. Simple remedies should not be despised when they are efficacious, or convey a reasonable hope of relief."

Paralysis or Palsy in Dogs.—C. Cleveland, Brevard Co., Fla.: Brain troubles may cause palsy, but the cause is more frequently found in the irritation of the stomach and bowels, from indigestion, worms, inflammation, or from cold, damp, malarial conditions of the ground or kennels; or injuries of the spine from blows, or long confinement of young dogs, when chained. Rheumatism may cause paralysis. Generally, these palsies occur in the hind quarters. Blooded dogs have a highly organized nervous system. Mange may cause palsy in young dogs. The cases are so obscure that we cannot tell the cause of these troubles in young dogs. Great care in management, feeding, and housing of dogs, as well as feeding, is essential to success in rearing dogs. Right diet, with but little meat sparingly given, one or two light meals for young dogs, with plenty of pure cold water, will be found to be safer than too free feeding. All young dogs require an occasional small dose of castor oil, a teaspoonful to a tablespoonful. Although strychnia is a deadly poison to a dog in a large dose, yet in all nervous weaknesses, in very small doses, for short periods at a time, it is the most serviceable nerve tonic for canines. The doses should be from a hundredth to the fiftieth part of a grain twice daily in the food. The former dose is the most useful.

Color, Temper, and Liability to Disease.—Charles Silver, Burlington Co., N. J., states that he has a light sorrel mare, in every way fine in the fullest sense of the word. Being desirous to breed as many similar animals as possible, he wishes advice how to breed. The mare is scant 15 hands, weighs 870 pounds, is a very light sorrel, has good, but small eyes, fine dished face, and good bony head and tapering ears, her coat is fine, short and glossy, her bones strong, limbs flat and sinewy, but she is a very delicate feeder, and her temper is far from sweet, and in the stable she is not safe to strangers, being very "handy" with all her feet. The mare is perfectly beautiful, a fine, free, twelve-mile roader, an easy saddle mare, sure of foot and spirited. From your description, the question is difficult to answer. You do not state that you desire more than to perpetuate her like. If so, you will have many difficulties to surmount, for a sire in every way her like except sex, would intensify defect of size, color, temper and delicacy of constitution, together with a certainty to liability to disease. Beauty in animals, as in mankind, is admirable, but coupled with vicious habits and bad constitution it becomes abhorrent and despisable in man or beast. A good, kind, safe, useful, hardy, healthy horse, capable of performing a reasonable service, is the most desirable and valuable helper any man can possess. But the opposite of all of these excellences, is certainly decidedly undesirable. If you are bound to breed that beautiful, delicate and vicious mare, select her opposite in everything, except in her good qualities. If we desire to perpetuate excellence we must duplicate the excellence. Both sire and dam must possess them, in an eminent degree. We cannot possess too much excellence in the parents, for we intensify the qualities in the offspring, securing one from two; but we may multiply the defects of both parents, and also those of their progenitors.

Hernia, or Rupture.—C. L. Delovan, Gratiot Co., Mich., has a yearling trotting filly that has a breach just back of the navel. If the filly is designed for the track, an operation will be necessary, or, if the breach is so bad that the bowels protrude, an operation may be necessary, as breeding might, and would, have a tendency to increase the trouble. A proper supporter with broad rubber webbing, attached to a broad and well padded surcingle, may, if kept properly applied, prevent serious protrusion during gestation and foaling. But as the animal is so valuable, it is advisable to call a skillful veterinary surgeon. Choose a skillful surgeon, as, even as in the human profession, many practitioners do not make a specialty of surgery, and this is eminently a surgical case. Valuable thoroughbred brood mares have produced colts every year for many years with bad hernias of the intestines.

Horse-Pox, Equine Variola.—H. Sims, King Co., Wash.: The horse-pox, it is believed, is broadly distributed over the regions of the world inhabited by the horse. It is also believed that the cow, or kine-pox, originated in the horse. It is an eruptive vesico-pustular disease. Like the eruptive malady in man, it is preceded by a slight degree of fever in both the horse and cow. It appears on the skin thinly covered with hair on the horse, and on the udder on the cow. It often appears on the mucous membrane of the nose and mouth, and at the same time eruptions appear on the lips and nose. Dr. Say was a cotemporary with Dr. Jenner, and probably from Jenner's experiments with cow, or kine-pox, as a preventive of small pox, he also studied the horse-pox, which he proved to be the same disease, though affecting the horse.

Tympanitis—Grass-Bloat.—J. May, Nash Co., N. C., had a cow turned out at 7 A. M., in a pasture of red and white clover and wire-grass. At 8 A. M. the cow returned terribly bloated, mouth wide open, and breathing with difficulty. The swelling continued and the poor sufferer died before anything could be given for her. The rapid evolution of gas from the succulent clover so distended the paunch that the lungs were oppressed by the diaphragm being pushed against them. The distension by gas was so great that the abdomen burst half an hour after death occurred. In all probability, the life of the cow could have been saved by letting out the gas with a pointed bladed knife, thrust deep into the paunch, when the gas would have escaped, so that ammonia or chlorinated lime might have been given by the mouth to have removed the remaining gas and to have prevented its formation, when physic and enemas would have carried off the clover. The point at which the knife should have been thrust, is four inches below the lower edge of the spine, and four inches forward of the point of the hip on the left side. The direction of blade should be inwards, downwards and forwards. This would avoid touching the spleen or kidney. Any hastily arranged tube, like the small end of a tin horn with the mouth-piece broken off, or a whistle, or an elder with the pith pushed out, could be kept in the puncture until all the gas had ceased to form. Two fingers of the left hand could keep the opening free until this provision had been made. A veterinarian would have used a trocar and cannula, but as these are not always at hand, nor are the veterinarians, a little knowledge, common sense and the emergency dictate the use of such appliances as shall secure the object—the saving of the life of a valuable animal.

The Disease-Producing Check.—Julius Kline, Essex Co., New Jersey, has two fine young Hackney stallions that are well-broken, which he keeps for service. They have been checked so high that neither of them can eat hay from the stable floor with any comfort. "What can be done to overcome this stiffness of the neck?" By removing the check rein from the harness much can be effected. Feed hay and grain on the ground, graze a short time every day, or feed the scattered hay from the yard; smartly hand-rub the necks daily. To make the groom do this, mix equal parts of spirits of turpentine, cologne spirits and highwines, and order a certain amount rubbed on the crest of the neck night and morning. Possibly, in part, the curvature of the neck is the result of breeding. But artificially high steppers are cruelly checked. There is more cruelty to horses practiced in Paris than any other part of the world. The torturing check-rein is the offender. There are teams of beautiful carriage horses kept in the stocks—in harness—in Paris, that never see the beautiful clean pavement during their awkward career in harness. The check-rein is the instrument of torture.

Kennel Lameness—Rheumatism.—Adolph Kerner, Dent Co., Mo., breeds mastiff, bull, and hunting dogs, and is greatly troubled with kennel-lameness, among his young dogs. Your kennels are on undrained ground, and have too much shade. Move the kennels, and dig a trench and cover with plank upon which place the kennels The ends of the trench may be stopped to prevent the pups from crawling into it by driving down stakes close enough, at each end. Bed the dogs with pine sawdust mixed with chlorinated lime. It is a good plan to change the kennels to new ground occasionally. Put the lame dogs by themselves, and put into their drinking water, every day, enough salicylate of sodium so that each dog shall get from five to ten grains a day. If this cannot be done, each dog should have five grains daily by himself in water. If there is any trouble about their lapping the water, give them outside exercise, and when warm they will take it. Dogs should have a little salt put in the food every feed. Nearly all young dogs are fed too often and too much. Meat-bones are the best tonics dogs can take. By this means the teeth, the mouth, the stomach, the muscles all get a healthful stimulant. Teach your dogs to do what you want them to do, and not to do that which they should not do. Teach them not to worry cats, chickens, nor to worry or kill sheep.

Wound Leaving an Open Joint.—J. T. Van Ostrand, Hancock Co., Ind., has a young heifer that had the tine of a hay fork pierce the knee joint, so that the joint-fluid discharges. It is a serious ailment and should be dressed so as to keep out the germs in the air. Put a fly-blister over the whole surface for two inches over the center of the opening. The blister answers three indications: It causes swelling, which helps to close the wound; and it keeps the heifer quiet; and stimulates a healing process within the part, which again closes the joint, and keeps out bacteria. You may see small abcesses forming, containing synovial fluid "joint water," but let them break themselves, as nature provides a plastic plug or cap to keep out the air. If you fail of a cure, after calving, feed gradually but freely, so as to secure beef if the heifer will not recover sufficiently for breeding purposes. For the dairy and breeding, the cow should be healthy and strong. A feeble dairy cow is poor property. When a wound has no external communication with the air, it seldom inflames, or to so slight an extent that no serious harm results; but if exposed to filth or the atmosphere, it both inflames and suppurates. Modern investigation—and many of these valuable discoveries have been made by veterinarians as well as human physicians—show us that suppuration is a bacterial process—the action of a minute organism, and that these organisms as are found in the air, or dust, or soil, and only require favoring circumstances and conditions to mature, and reproduce their kind, and often in countless myriads in a brief space of time.

MATTERS OF BUSINESS.

What It Has Done For the Doctor.—Have kept and sold Hires' Root beer several years. I have drunk it exclusively this summer. Am 78 years old and feel like a boy. It is ahead of sarsaparilla. H. VanWagenen, M. D., Darlington, Wis.

A Salary, with expenses paid, will come handy to anyone who is now out of employment, especially where no previous experience is required to get the position. If you want a position, read advertisement on second cover page, headed "A Chance to Make Money.

American Southdown Breeders' Association.—A special World's Columbian meeting of the American Southdown Sheep Breeders will be held at Chicago on September 27th. Secretary S. E. Prather, of Springfield, Illinois, believes that mutton breeds of sheep are rapidly taking places now held by the fine wools, and it behooves Southdown breeders to make personal efforts to keep this breed at the head.

Safety Vapor Engine.—Progressive farmers will be pleased with the Vapor engine, made by the Safety Vapor Engine Co., 16 Murray St., New York. It will, with slight expense, run the separator and churn, pump the water, saw the wood, thresh the wheat, shell the corn, grind the grain or chop the feed, cut fine the hay, turn the cider mill or the grindstone, and do much other farm work. The company will send an illustrated circular free to all of our subscribers who mention this magazine.

American Veterinary College.—The Veterinarian of to-day is not an ignorant horse doctor, but an intelligent animal physician and surgeon, who is recognized in both America and Europe as a professional scientist deserving respect and honor due to all who are working for the health of living beings. Any young man who contemplates graduating as a Veterinarian will do well to write to the Dean of the American Veterinary College, 141 West 54th St., New York, for the 19th Annual Announcement, which gives full information.

The Columbian Planet.—S. L. Allen & Co. of Philadelphia take pleasure in informing our readers that their "Planet Jr." exhibit at the World's Fair, Chicago, is now complete, and extend a cordial invitation to them to call and see them there and to make the "Planet Jr." space (E. N. 10 Agricultural Annex) headquarters while in Chicago. A special exhibit of "Flexible Flyers" and "Flyer Coasters" will be found in the Transportation Building (Gallery B-11) in charge of Mr. Charles Wainwright, who will be glad to see all interested in that class of goods.

A Healthy Bath.—A bath is a blessing to both mind and body. The farmer and every outdoor worker, who labors with heroic energy all day long, unavoidably gathers on the entire surface of his body a complete prison wall of dust and thickening, gummy perspiration; and when the day's work is done, he needs then, more than any other thing, not only a wash but a good, full bath to fit him for a clean bed and a refreshing sleep. Knowlton's Universal Bath is an excellent substitute for a regularly equipped bathroom, and at a very small expense. E. J. Knowlton, Ann Arbor, Mich., will send descriptive circulars free to every reader mentioning this magazine.

New York College of Veterinary Surgeons.—Hundreds of millions of dollars' worth of live stock are dependent for medical attention upon the Veterinarians. The public has been brought to feel the need of doctors well educated in Animal Surgery and Medicine, because of the ravages of contagious diseases among the stables and flocks. The field of labor for the veterinarian is a large and lucrative one, and its scope is constantly increasing. The New York College of veterinary Surgeons and School of Comparative Medicine, 332 East 27th St., New York, will send a catalogue, describing the needed preparations, to all who write to the institution.

Standard Burr Stone Mills and Mill Machinery.—The Edward Harrison Mill Co., of New Haven, Conn., has been succeeded by Leonard D. Harrison, a member of the firm from the beginning. He will carry on the manufacture of the Standard Burr Stone Mills, Cob Crushers, Bolts, Water wheels, Automatic Scourers and Separator, Corn Shellers and other mill machinery. The Harrison Mills have been on the market for nearly fifty years and their reputation for doing good work is well established. They are made of choice material by skilled workmen with special tools, and contain many recent practical improvements. An illustrated descriptive catalogue will be sent to applicants who mention this magazine.

Windmill Tanks.—To give our readers an idea of the immense amount of stock used in some branches of business, an interesting event occurred when the first steamer with a full load of tank lumber arrived in Chicago from the Lake Superior region a few days ago. After being unloaded on the docks, it required an entire train of 31 cars loaded to their full capacity to transport it to its destination. The entire cargo was consigned to The U. S. Wind Engine & Pump Co., Batavia, Ill. The idea of the magnitude of the business of this concern may be gained from the fact that this is only one of five similar shipments required to complete their order for tank lumber to be used exclusively in the manufacture of tanks for this season only.

American Apples in England.—From their latest Liverpool advices, Messrs. Otto G. Mayer & Co. of 9 Bridge St., New York, write us: "We are led to expect an English crop much superior in extent and quality to recent seasons. This fact is likely to be unfavorable to shipments of the inferior descriptions of Canadian and American apples, but it is fair to mention that the very advanced state of the British crops will most likely throw the bulk of supplies earlier than usual for consumption on the markets, and consequently foreign supplies which arrive later will not have to compete with the full weight of the crop. As regards the superior qualities of American, and the winter stock of Canadian, we do not hesitate to expect a good demand. We repeat our warning of last year that very small and common qualities are not likely to result favorably to shippers and are better left alone. This in face of plenty of English apples is more than ever likely to prove wise advice."

Of Interest To All Travelers.—The New York Central & Hudson River Railroad Company has issued the fourth book of the Four-Track series; or, "Health and Pleasure on America's Greatest Railroad," a publication which is not only one of the handsomest works of the kind ever gotten out, but is full of information for the summer tourist who wants to go somewhere and does not know how to take the initial trip. This book of over 350 pages tells the traveler about all the places that he is most anxious to see, shows him how they look, and explains the best way to reach them. There are 300 pen and ink sketches and wood engravings, and the letter-press is furnished on the principle so that he that runs may read. The wonderfully varied scenery of New York State is not alone described and portrayed, but the far West, and even "A Trip to Japan" are included. Beaconsfield's maxim, "Travel is the greatest source of true wisdom," is the motto of the book. A copy will be sent free to any address upon receipt of five two-cent stamps, by George H. Daniels, General Passenger Agent, Grand Central Station, New York.

Live Stock at the Columbian Exposition.—The Cattle and Horse shows at Chicago from Aug. 21st to Sept. 9th are the largest live stock exhibitions ever held in the world. All the famous breeds of Europe and America are represented. Among the notable features are the sixty government horses from Germany, the Russian horses and the French long distance trotters. The lists in Chief Buchanan's office show that 1,136 horses have been entered—524 in the heavy and 612 in the light breeds. The heavy animals are distributed as follows: Percheron, 155; Clydesdale, 187; shire 49; French draft, 45; Belgian, 67; Suffolk, 21. The light breeds are represented as follows: Trotters, 35; thoroughbreds, 26; French coach, 63; German coach, 90; Cleveland bay 48; hackney, 32; Morgan, 66; Arab, 25; French trotters, 23; saddle, 43; Shetland, 85; Russian, 21. The entries in the cattle contests aggregate 1,237, which includes 747 beef and 490 dairy animals. The beef breeds are represented as follows: Short horns, 219; Herefords, 140; Angus 72; Galloway, 78; Devon, 71; Holstein, 67; Red Polls, 70; Polled Durham, 30. The dairy breeds will be represented as follows: Jersey, 243; Ayrshire, 129; Guernsey, 49; Brown Swiss, 54; Dutch belted, 16. The money premiums aggregate $150,000.

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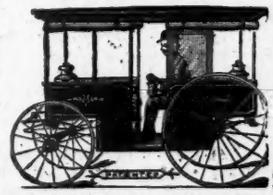

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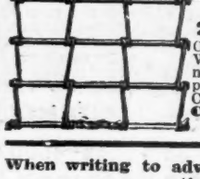

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